THE HEATING AND VENTILATING MAGAZINE

1123 BROADWAY NEW YORK JUNE, 1905

Seventeenth Annual Convention of Master Steam and Hot Water Fitters

Atlantic City, N. J., June 12-15, 1905

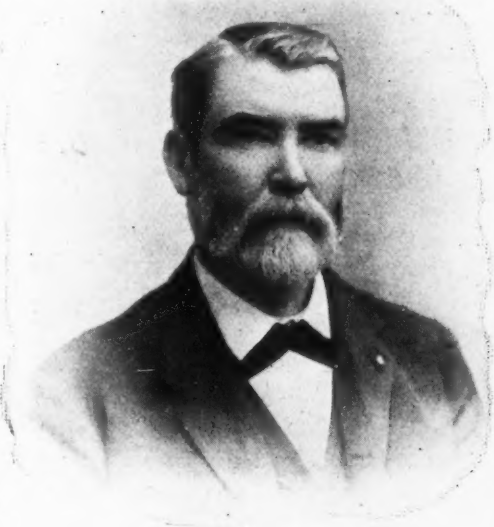
The most noticeable feature of the recent convention of Master Steam and Hot Water Fitters, held June 12-15 last at Atlantic City, N. J., was a sense of renewed and increased strength, that ran along through all the proceedings, developing interest and enthusiasm at every turn. It was sounded early in the sessions when the Credential Committee turned in its report, stating that 411 members were entitled to sit in the convention hall. This, alone, showing so large an increase in the membership, was enough to give sufficient "life" to the convention to make it a successs.

But in addition to this, the record of the past year under President Hall's administration, as told in the Board of Directors' report, showed a flourishing condition of affairs, indicating, to a degree, the rapid strides the organization has made during that time.

Many of the members and their friends in the supply trade were on hand early to participate in the tournament of the Eastern Trade Golf Association which was held on the links of the Atlantic City Country Club, June 12, so that there was a much larger attendance than usual at the opening session the next day.

Among those present at the Convention were the following:

Mr. and Mrs. George H. Morris, New York City.
F. R. Austin, New York City.
W. A. S. Clarke, New York City.
C. H. Tower, New York City.
T. T. Lyman, New York City.
J. C. Hosford, Boston, Mass.
R. F. Burns, Boston, Mass.
Mr. and Mrs. James H. Davis, Chicago.
Miss Davis, Chicago.
Fred B. Browning, Boston.
F. D. Ford, Detroit.



P. GORMLY, PHILADELPHIA, PA.
NEWLY ELECTED PRESIDENT

W. M. Cosgrove, Jersey City.
Mr. and Mrs. John D. Hibbard, Chicago.
Geo. W. Keyser, Indianapolis, Ind.
J. A. Diggle, Indianapolis. Ind.
C. E. Hasey, Minneapolis.
Miss Hasey, Minneapolis.
E. B. Denny, Newark, N. J.

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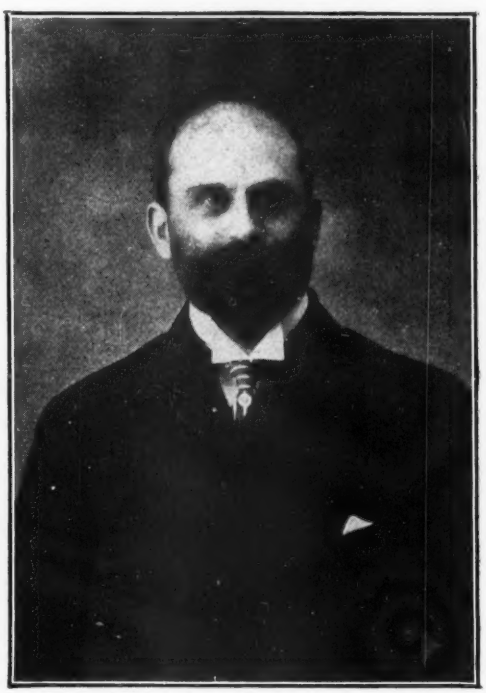
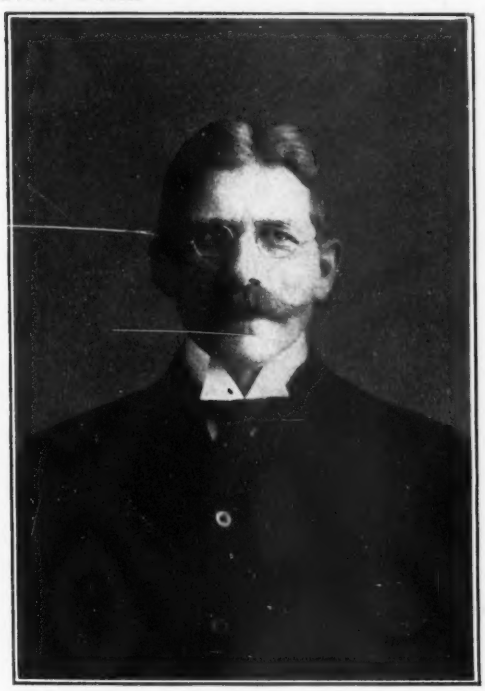
ALBERT N. CHAMBERS, NEW YORK
RE-ELECTED TREASURER

P. J. Freaney, Indianapolis.
John O'Donnell, Evansville, Ind.
Harvey A. Callon, Indianapolis, Ind.
H. C. Dewenter, Indianapolis, Ind.
Mr. and Mrs. Wm. A. Davis, New York city.
Mr. and Mrs. Richard Hankin, New York.
Mr. and Mrs. E. N. Cokefair, New York.
Mr. and Mrs. M. G. Sellers, Philadelphia.
Mrs. W. J. Sellers, Philadelphia.
Mr. and Mrs. A. R. Hesske, Philadelphia.
The Misses Hesske, Philadelphia.
John F. Walsh, Philadelphia.
Mr. and Mrs. F. A. Clegg, Louisville, Ky.
E. Rutzler, New York.
Miss Rutzler, New York.
J. D. Stiles, Boston, Mass.
Joseph McWilliams, Louisville, Ky.
William D. Davis, New York.
Robert A. Spice, Fort Wayne, Ind.
The Misses Spice, Fort Wayne, Ind.
Mr. and Mrs. H. F. Welsh, Rochester, N. Y.
The Misses Welsh, Rochester, N. Y.
Master H. Welsh, Rochester, N. Y.
Wm. R. Watters, New York city.
P. W. Butler, Scranton, Pa.
Mr. and Mrs. Henry L. Hall, Plainfield, N. J.
Miss Marion Hall, Plainfield, N. J.
Frank H. Simmons, New York.
J. B. Bernhard, New York.
H. J. Tilson, New York.
Chas. F. Webber, New York.
H. T. Sheriff, Chicago.
Mr. and Mrs. A. S. Armagnac, New York.
H. M. Carruthers, New York.
Joshua Naylor, New York.
George H. Zellers, Washington, D. C.
Alfred E. Kenrick, Brookline, Mass.
W. G. Le Compte, Baltimore, Md.
Mr. and Mrs. Henry B. Gombers, New York.
Miss Blackwood, New York.
F. A. Herendeen, Geneva, N. Y.
E. P. Allen, Chicago, Ill.
John Boylson, Chicago, Ill.
E. J. Febrey, Washington, D. C.
H. H. Hellerman, Philadelphia.



HENRY B. GOMBERS, NEW YORK
RE-ELECTED SECRETARY

A. N. Chambers, New York city.
E. M. Nichols, Philadelphia.
Walter Higgins, Washington.
C. Aneshaensel, Indianapolis.
Thomas Eagan, Washington.
Samuel Billson, Washington.
H. Hitchcock, Atlanta, Ga.
Geo. A. Eagan, Washington, D. C.
R. W. Hillman, New York city.
H. L. Anness, New York city.
W. F. Wolfe, Philadelphia.
James J. Lawler, New York city.
Geo. E. Walton, New York city.
J. J. Blackmore, New York city.
John W. Danforth, Buffalo.
Louis P. Monash, New York city.
H. W. Nowell, New York.
Mr. and Mrs. Stewart A. Jellett, Philadelphia.
Master Roland T. Jellett, Philadelphia.
Mr. and Mrs. Wm. H. Gaylord, Binghamton, N. Y.
A. B. Beith, New York city.
T. J. McCormack, Yonkers, N. Y.
J. H. Cooney, Harrison, N. J.
A. B. Jenkins, New York city.
E. P. Allen, Chicago, Ill.
George D. Hoffman, New York city.
Mr. and Mrs. H. Otis Packard, New York.



WILLIAM A. DAVIS, NEW YORK
RE-APPOINTED SPECIAL REPRESENTATIVE

J. C. F. TRACHSEL PHILADELPHIA
NEWLY ELECTED SERGEANT-AT-ARMS

H. T. Gates, New York city.
Thomas C. Fleming, Philadelphia, Pa.
J. Carney, New York city.
Timothy Kieley, New York.
F. H. Fairweather, New York city.
P. M. Beecher, Syracuse, N. Y.
Frank J. Mulcahy, New York city.
Warren Webster, Camden, N. J.
Mr. and Mrs. Wm. M. Mackay, New York.
A. A. Ainsworth, New York.
P. Gormly, Philadelphia.
Geo. T. Coppins, Boston, Mass.
Frank J. Corbett, New York.
John Gormly, Philadelphia.
Leonard Elliott, Philadelphia.
W. P. Thompson, Philadelphia.
Wm. Milligan, Philadelphia.
C. M. Stokes, Norristown, Pa.
E. D. Smith, New York.
James M. Healy, Indianapolis.
Mr. and Mrs. John T. Sadler, Elmira, N. Y.
Frank N. Speller, Pittsburg.
J. M. Heatherton, New York city.
Mr. and Mrs. Theo. L. Webster, Camden.
Frank K. Chew, New York city.
Chas. K. Foster, Dunkirk, N. Y.
A. L. Devoe, New York city.
Oliver H. Schlemmer, Cincinnati, O.

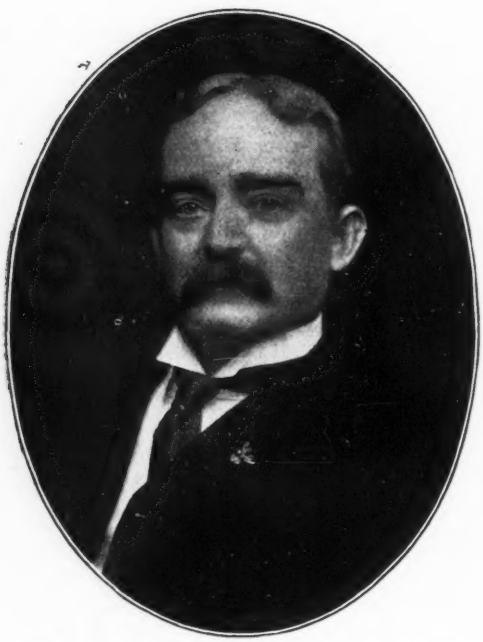
Charles White, Cincinnati, O.
Homer Addams, New York city.
F. W. Schultz, New York city.

Immediately upon assembling the president appointed the following Credentia! Committee: Alfred E. Kenrick, chairman, John O'Donnell, Joseph McWilliams, E. B. Denny, William H. Gaylord and Albert N. Chambers.

The Credential Committee made its report at the afternoon session, showing that 411 members, in 19 states, a net increase of over 160, were in good standing. The convention then listened to the president's address.

ADDRESS OF PRESIDENT HENRY L. HALL

Your President experiences great pleasure in being able to greet you at this, our seventeenth convention. The past year is the seventeenth of our corporate life and there is no part of this past year, nor indeed of any of the past seventeen years, that need cause us a moment's embarrassment or regret. The same high ambitions that actuated our predecessors in founding this organization are a living stimulus to us to-day, as we still strive assiduously for the goal.



JAMES M. HEALY, INDIANAPOLIS, IND.
RE-ELECTED DIRECTOR

HENRY L. HALL, NEW YORK
RE-ELECTED CHAIRMAN, BOARD OF DIRECTORS

If any of us will thoroughly consider the history of the years that have gone, we cannot but feel that they are rich in events that will shape our future career.

We have been passing through what may be fairly termed a constructive period. Year by year we have added new strength; piece by piece we have been slowly but surely completing a structure that commands the attention and dignified respect of all who know us.

Our predecessors laid a true foundation; it was built to stay; we have never been obliged to tear down and rebuild any part of it. I believe, gentlemen, that we have nearly reached the limit of the constructive period of our Association and that on this, the day of our seventeenth annual convention, we stand on the threshold of a period of achievement. Success for the future lies in the possibilities of achievement; nothing is more helpful than the consciousness of achievement in the past.

At the last convention I urged you to lay close to your hearts the watch-

JOHN T. SADLER, ELMIRA, N. Y.
RE-ELECTED DIRECTOR

word "Loyalty"—I bid you still cling faithfully to the word "Loyalty" as your watchword and let us this year add a word for a countersign, and let it be "Achievement."

The Association idea is, at the present time, a popular one in the United States, and it proves an interesting study when it embraces a community of trade interests such as ours. Our Association, formed as it is, of the component parts, represented by our State and Local Associations, with here and there an individual member, is in theory an epitome of our National Government.

Your National Board of Directors constantly bear in mind that it is their duty to legislate in a national sense, and yet they keep before them, as nearly as possible, the necessities and requirements of each section of the country where we have a membership.

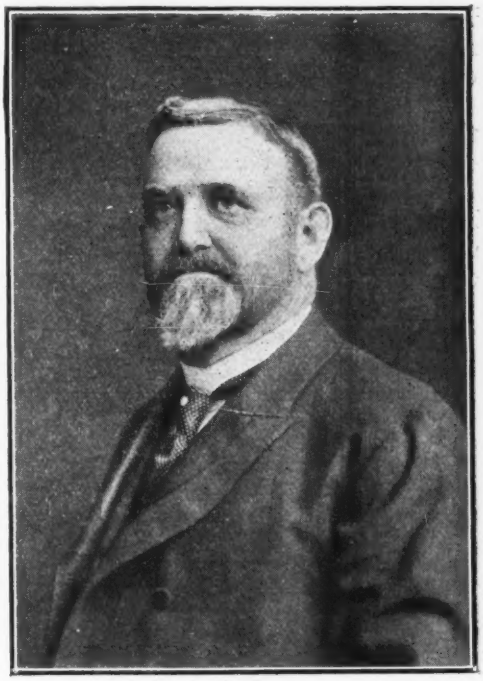
We have, as an Association, duties to perform if we propose that our membership shall be valuable to ourselves. There is no man in this Association whose membership can be valuable to him, as an individual, unless he fully recognizes that he has a duty to perform towards his fellow member in carrying out the principles and objects of the Association.

Let every member of this Association, old and new, read Article II of the Constitution, and let the words be burned indelibly in his mind, and if he does not soon awaken to the fact that he has a duty to his neighbor, as well as to himself, then the words of Article II are idle phraseology. It seems to me that the real meat of the reason of our existence lies in the following sentence, which is the last of Article II:

> "And for the general mutual protection and conservation and advancement of the business of steam and hot water fitting."

Mutual protection is a broad proposition. Let me cite an instance that came to the attention of the National Headquarters during the past year.

The members of the Local Association of Steam Fitters in a large city requested their local architects to accept estimates and make contracts for heating work direct with



ALFRED E. KENRICK, BROOKLINE, MASS.
RE-ELECTED DIRECTOR

steam fitting firms and not permit contracts to be handled and awarded through a general contractor. The local associations of nearby cities were advised that this action had been taken and they were requested to accord a full measure of protection to the members who were conducting so worthy a campaign. The general contractors endeavored to secure estimates for the purpose of defeating the steam heating fraternity and the architects; and let it be said to the everlasting credit of the members of the National Association that so far as we know to-day, not one member defaulted in his loyalty to his fellow members in the fight, and therein was a recognition of one of the fundamental objects of this Association, viz., mutual protection.

Now, gentlemen, mutual protection does not mean restraint and interferences; it means fair-mindedness, it means equal consideration, it means that your neighbor who is a member of this organization has a right to ask you to do reasonable things to protect his interests, and it means that you are not within your rights as a member if you attempt to ask your neighbor to do unreasonable things and commit acts that are detrimental.

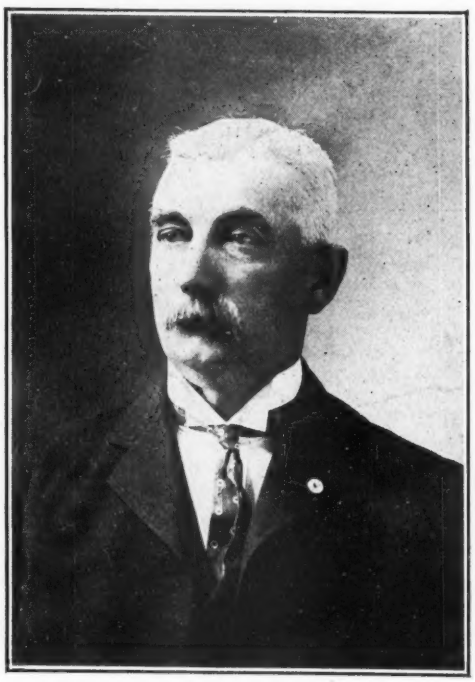
The real service is not rendered by the critic who stands aloof from the contest, but by the man who enters into it and bears his part undeterred by trouble and sacrifice. To act and not to criticise is the part of the man who is interested in this Association.

To secure the best results from mutual protection, we must work disinterestedly and appeal to that element in others which is disinterested, and the combined result cannot fail to be for the common betterment of the body at large; and yet no member should be lacking in the essential virtues of energy and resolution.

Mutual protection, if it is intended for the betterment of the membership at large, must not always be weighed in the balance with mere business expediency. The merely commercial ideal is fugitive in its very essence.

We are not in any sense of the word a strictly technical association, and yet it is entirely consistent that our aims and ideals shall be lofty along the lines of our purposes. We must subject ourselves to the continual effort of improving practices, lest we shall suffer the penalty of retrogression.

The men who have previously influenced the growth of this National Association and laid the foundations for its character as a national body, have been in most cases the men who have influenced us for the best and



GEO. H. ZELLERS, WASHINGTON, D. C.
ELECTED DIRECTOR

so strongly fought against the worst tendencies of the Association idea.

It is eminently a part of this Association's work to stimulate good steam fitters. If we find a membership resorting to practices in any locality that will ultimately lead to their disruption, it is the proper duty of the national officers to give them any information that will lead to a correction of the practices.

It has often been suggested that there is much information of a similar private character that would be of

great service to our members in small towns, and where there is a local secretary this information could be lodged in the secretary's hands and distributed by him in such manner as would best meet the exigencies of the situation. This is but another form of mutual protection.

The area being covered by our membership is rapidly broadening and more and more future boards of directors will come to appreciate the necessity for legislating in a national sense, and more will we meet the problems presented by special conditions surrounding local associations, thus forcing us to recognize home rule as a cogent factor in our Association. Provisions which are useful to the steam trade in one State are not effective for the trade in another State, and if as a national body we are able to lay down for our guidance fixed principles, we shall secure for our members a high order of efficiency.

The conservation and advancement of the business of steam and hot water fitting is an obligation that is laid to the door of each individual member of this Association. If you faithfully conserve the business in which we are all engaged, you must be watchful to protect it from injury, you must be helpful in your efforts to perpetuate the Association. If you would protect your business and perpetuate the Association which contains all the vital elements of protection, you must make up your mind to act on the broad gauge plan. Your point of view must be so broad that you can deal as fairly with the man on your List in Accord as you can with your own members.

Our membership is bound to grow, indeed, it must grow if we are to be a power in the land, but we must be conservative within reasonable limits; and, gentlemen, with a growing membership, representing different sections of the country, different ideas, different practices, I warn you to be careful in conserving the business of steam and hot water heating, that you do not wreck your craft on the hidden rocks of Radicalism.

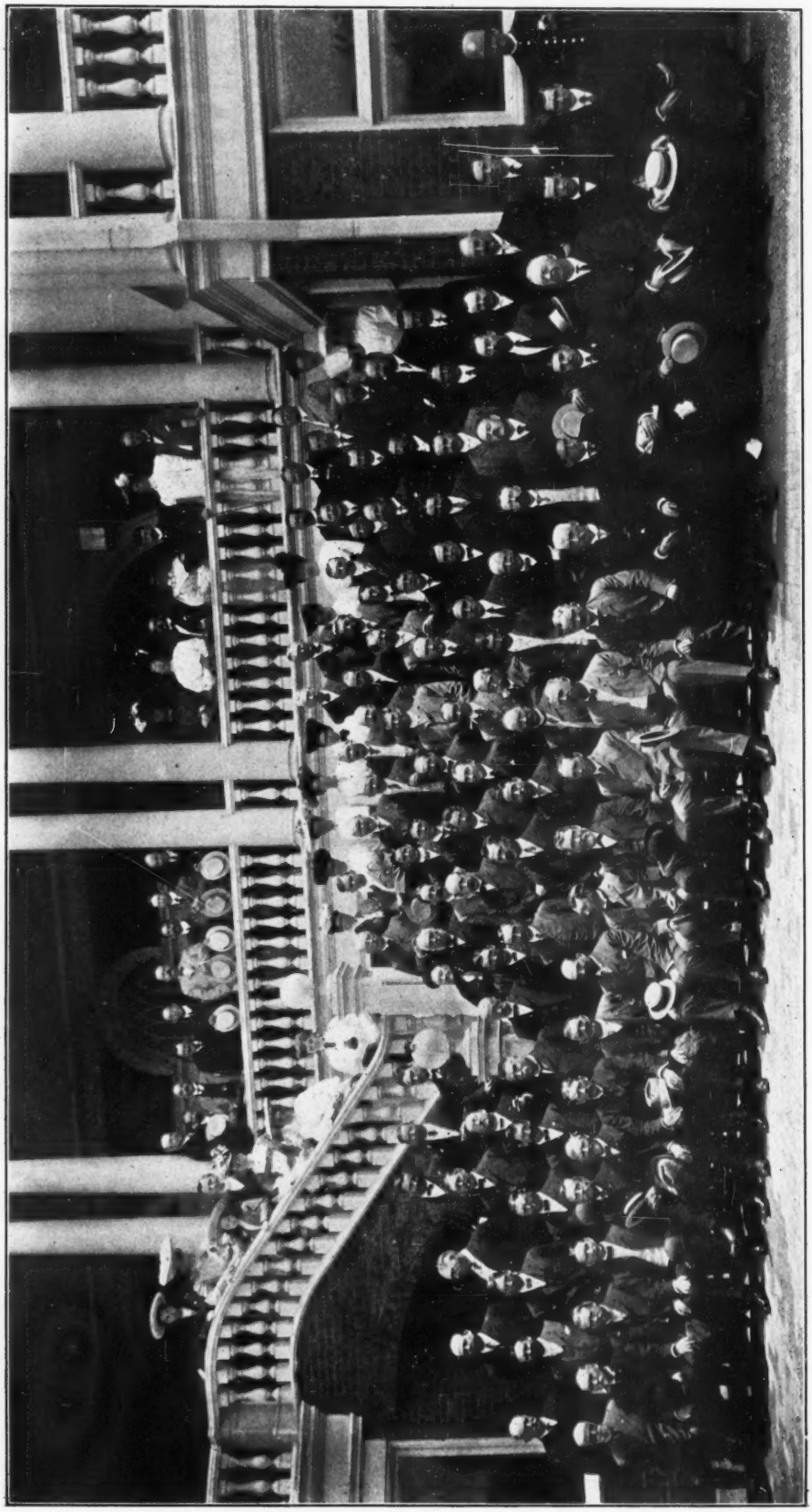
From every section of this country where we have a membership our List in Accord is gaining new friends, and members are adopting it as a directory for the names of manufacturers and supply dealers from whom they may purchase goods. In the seventeen years that have passed, much faithful effort has been devoted to the List in Accord to make it of substantial and recognized value. Our membership to-day is sufficiently strong to prove to any individual manufacturer that he can with great profit to himself pay heed to our reasonable requests, and not wilfully permit practices that injure his best friends in the steam fitting industry.

Does it mean nothing to you when your Board of Directors will tell you that in the past year there have been less than a dozen well founded complaints against manufacturers? It either means that it is the sum total of violations that have interfered with our members, or it means that our members are not reporting consistently the violations that come to their notice.

On this question of violations of manufacturers there is much opportunity for thoughtless indictment. I do not plead for the manufacturer; I plead for plain straight-forward American fairness and justice.

I told you last year, gentlemen, without reservation that I had an abiding conviction that the policy of "sell to member only" was un-American. If you lend your efforts to false ideals, born of a spirit of Radicalism, they must fade away as midnight darkness before the dawn. I do not believe the principle of "sell to member only" will ever be successful if this Association is ever fortunate enough to possess a membership even as high as 90 per cent. of the steam fitters of the United States of America. I am equally strong, however, in my conviction that with a membership that represents a great percentage of the purchasing power, we can secure privileged prices, but it is a long hark from this condition of things to "sell to member only."

I grant you that there are local



MEMBERS OF THE CONVENTION AND GUESTS IN FRONT OF THE ST. CHARLES

conditions of membership that are so strong and represent such a great percentage of the purchasing power, that it is possible in those localities to dictate a code that regulates the purchaser and seller, but to expect the National Association to establish, enforce and maintain a code of this character as a national proposition is as futile as to look for the sun at midnight. Do not misunderstand me, gentlemen. I do not wish to infer that it is not possible, and indeed probable, that the National Association may establish a code between purchaser and seller that shall represent well-defined privileges to our members, but when it comes to prohibiting the sale of material to any but members of the Master Steam Fitters' Association, that is one of the rocks of Radicalism that will wreck your craft.

The experience of the Board of Directors in the past two years has been that manufacturers of radiators and boilers are using greater care than ever before in disposing of their goods through recognized channels.

It is a fact, and it must be squarely met and squarely dealt with, that there is a growing class of steam fitters who do a combination plumbing and house-heating business, in whom the manufacturers of boilers and radiators find a source of great revenue, and it is distinctly up to us to get this class of steam fitters on our list of members.

The Board of Directors have had several cases during the past year where complaints have been lodged against manufacturers selling goods to steam fitters who, unfortunately, were not members of this Association, nor were they in a large way of business. In one case in the South the steam fitter had his office at his residence and a shop in a barn adjoining his residence. The case is an aggravated one and a searching investigation developed the fact that the manufacturer was justified in selling the steam fitter, who was legitimately engaged in the business and exercising the great American privilege of making a living and was not acting as a dummy or a subterfuge for any manufacturer.

We canot be expected to ruthlessly remove a name from our List in Accord because a sale has been made to a steam fitter who is not a member. We fail in our duty as officers when we cease to act fairly in face of facts disclosed by careful investigation. Far better to exercise our influence to convince the steam fitter outside the breastworks that his place is within, and that our mission is to make good steam fitters and not to break them.

We must deal with these questions as men; we must deal with these questions, recognizing the right and privilege of any man to go in the steam fitting business, and recognize the equal right of the men who manufacture to dispose of their wares through legitimate channels.

There is another problem that is sure to confront us with greater frequency as our membership increases, and that is the status of the member who is located in suburban or isolated country districts and finds it essentially to his interests to tie up to some one manufacturer of boilers and radiators. He is a legitimate steam fitter, a member of our organization; he is to all intents and purposes a manufacturer's agent, disposing of a special line of goods to the exclusion of all others of a similar kind. Manufacturers no doubt make favorable concessions to this steam fitter in the matter of price, credit and delivery, and in return for these concessions may reasonably expect the steam fitter to give him the benefit of all of his orders.

Now, what would you say to the competing manufacturer of boilers and radiators who makes an effort through his salesmen to sell his goods in the territory of a member of our Association, when the aforesaid member is not in a position to handle his goods because he is de facto the agent of a competitor.

The natural channels through which the manufacturer disposes of his goods is the steam and hot water fitter who is regularly engaged in the

industry, and if this channel is closed to all the manufacturers, except one, can you reasonably expect manufacturers to forsake an opportunity of doing business because the de facto agent of a competitor happens to be a member of this organization.

Broadly considered, if our members have closed agreements with manufacturers and will not give competing manufacturers any consideration, it would seem as though they must expect competition.

This is a question of relation between master steam fitters and manufacturers, and it is a question, further, that requires much illumination. Dozens of cases can be cited to you, but at this moment there is no better argument than to appeal to your common sense of right and justice, if you have the permanent interests of this Association at heart.

I trust before this session closes that it will seem proper to discuss briefly the question of common interests existing between the National Association of Master Plumbers and the National Association of Master Steam and Hot Water Fitters. So far as trade protection is involved, we are both practically striving for the same end, and it seems to your President that the time is ripe for greater affiliation between the two bodies and an interchange of ideas.

Another subject which ought to demand your attention is the question of future conventions. As the membership grows and includes many members of both organizations, it will perhaps not be unwise to consider the practicability of the National Association of Master Plumbers and the National Association of Master Steam and Hot Water Fitters holding their annual conventions at the same place and on dates very close together.

Gentlemen of the Master Steam Fitters' Association, you have seen fit to honor me with election to the position of President for two years past; this past year you have added further distinction by awarding me the dual position of Chairman of the Board of Directors. Let me say without the slightest reservation that the honor has been dearly bought, for it has been a very busy year, but I do not regret one iota of the time and effort expended, and, believe me, I deeply appreciate every honor you have conferred, and as this is my valedictory as your President, let me express the wish and cherish the hope that you believe in my conscientious effort to help in the up-building of an Association that "shall be as lasting as the home of the stars and as eternal as the foundations of the everlasting hills." (Applause.)

Mr. Kendricken, of Boston, arose to ask the President to repeat his remarks concerning the efforts of master fitters in a certain city (Boston) to secure heating contracts direct from the architect rather than through the general contractor. He then expressed his own thanks and those of his fellow members from Boston to the President and other members who had supported the Boston Association it its campaign.

It was voted to admit to the executive sessions Benjamin Noble, of London, Ont., and Harry W. Harrison, of Toronto, Can., representing Canadian associations of Master Steam Fitters.

The convention then went into executive session.

The remaining reports, including those of the Board of Directors, Treaurer, Secretary and Trade Relations Committee were all read at this and subsequent executive sessions.

REPORT OF THE BOARD OF DIRECTORS

The report, in part, was as follows:

Your Board of Directors take great pleasure at this time in submitting to you a report which is an outline of the transactions of this organization during the seventeenth year of its existence. Much that has been done is in accordance with your instructions at the last convention.

The National Board of Directors, elected at the Atlantic City convention in June, 1904, held their first meeting at Hotel St. Charles, Atlantic City, N. J., June 15, 1904, and organized by electing Henry L. Hall, of New York city, chairman, and re-

electing Henry B. Gombers, secretary of the Association.

The Board of Directors appointed as a sub-committee the chairman, the treasurer and any other director who was present at any regular meeting. The sub-committee was authorized to pass upon and decide all matters that did not require the attention of the full membership of the board.

By virtue of the authority vested in your sub-committee of the Board of Directors, the mass of details that accumulated in the interim of the monthly meetings was promptly handled.

Our headquarters have been open at all times, except Sundays and holidays, and during the year fifteen (15) meetings of the Board of Directors have been held, with an average attendance of four (4) directors at each meeting.

Questions of moment requiring careful thought, were, as a rule, submitted to the absent members in writing after having been discussed at a regular meeting of the Board of Directors and a decision passed to the minutes based on the consensus of opinion.

We have endeavored at all times to conscientiously observe the requirements of the Constitution and to interpret broadly for the good of the body at large.

The chairman of the Board of Directors, and the vice-president and treasurer have been in close touch with headquarters at all times. The chairman takes great pleasure in reporting the unanimous good will which has existed in the Board of Directors during the past year, and the year's work is the result of cordial unanimity.

The organization is to be congratulated on the splendid results that have accrued since the employment of an official organizer.

Our official organizer, Mr. William A. Davis, began his duties about October 1, 1904, and his work has therefore extended over a period of about seven months.

The results detailed below will indicate the wisdom of the last convention when they directed the President to secure the services of an official organizer.

Since the last convention we have added to our membership roll 229 members. The membership is distributed as follows:

Connecticut, 25; Kansas, 2; Massachusetts, 9; New York, 35; New Jersey, 13; Ohio, 39; Kentucky, 4; Michigan, 27; Pennsylvania, 17; Indiana, 16; Maryland, Montana, North Carolina, Arizona, Georgia, each 1; New Mexico, 4; Iowa, 6; Minnesota, 5; Missouri, 20. Of this splendid roll of States, there are five States in which we never before had members.

Twenty-seven new local associations have been formed in States and towns of Connecticut, New York, Ohio, Kentucky, Michigan, Pennsylvania, New Mexico and Iowa. We have members in fifty-four towns and cities where we had no representation one year ago.

We have a list comprising 160 names of firms who are all but ready to join our organization. They have given their consent so to do and in most cases some unimportant local condition prevents them from qualifying at the moment.

The treasurer's report will present in detail the flourishing condition of our treasury at the present time, and we feel sure that these various items will satisfy the most captious critic.

The *Official Bulletin* has been under the able editorial management of Mr. Arthur S. Armagnac up to the first of May, at which time his resignation was accepted by the Board of Directors.

The List in Accord has been a source of study to your Board of Directors during the past year, and we have endeavored to make the list one of tangible value to the master fitters.

By no means have we placed on the list every applicant. Applications for a place on the List in Accord have been carefully considered, and if it seemed consistent to place a name, the Board of Directors frankly so advised the applicant.

It has been our unanimous desire

that the List in Accord shall be composed of firms who can serve our mutual interest by giving us the fair measure of protection, outlined by the Trade Resolutions.

Our List in Accord at the present time is composed of 300 names. There have been added during the past year 36 firms who never before appeared on the list.

For various causes 11 names have been dropped from the List, leaving us a net gain of 25 names.

The records would seem to indicate that the master fitters are maintaining the dignified respect of the trade at large.

REPORT OF THE TREASURER

The Treasurer's report showed the Association in a flourishing condition financially, with cash on hand May 1, 1904, $4,933.53; receipts, May 1, 1904, to May 1, 1905, $12,866.39; making a total of $17,799.92; expended, May 1, 1904, to May 1, 1905, $13,390.35; balance on hand May 1, 1905, $4,409.57.

The following committees were appointed by the President:

APPEALS AND GRIEVANCES

John Gormly, Van Buren Griffin and E. R. Soleau.

AUDITING

William J. Baldwin, Jr., C. Eames and Frank Schroeder.

NOMINATING

Stewart A. Jellett, Charles A. Geoghegan, J. Dewenter, E. J. Febrey, Paul H. Kendricken.

GOOD OF THE ORDER

William H. Gaylord, S. Wright, H. Hitchcock.

CONSTITUTION AND BY-LAWS

George H. Morris, A. B. Barr and Robert Spice.

DISTRIBUTION OF REPORTS

Alfred A. Kenrick and F. P. Hill.

The remainder of the work of the convention was done in executive sessions with little exception.

The Report of the Nominating Committee showed the following nominations:

OFFICERS

President, P. Gormly, Philadelphia.

Vice-president, Charles A. Geoghegan, New York city.

Treasurer, Albert N. Chambers, New York city.

Sergeant-at-arms, John C. F. Trachsel, Philadelphia.

Board of Directors, Henry L. Hall, New York city; Albert N. Chambers, New York city; P. Gormly, Philadelphia; James M. Healy, Indianapolis; Ind.; Alfred E. Kenrick, Brookline, Mass.; John T. Sadler, Elmira, N. Y.; George H. Zellers, Washington, D. C.; Charles A. Geoghegan, New York city.

Paul H. Kendricken, of Boston, acted as temporary chairman for the installation of the new President. He appointed Mr. Jellett and Mr. Morris to conduct the newly elected officers to the platform. The members of the new administration were afterwards called upon for speeches, and no guilty man escaped.

The convention practically ended with these formalities, although a brief session was held the next day, June 15.

At a meeting of the new Board of Directors, immediately after the installation of officers, Henry L. Hall was elected chairman of the Board. Henry B. Gombers was re-elected Secretary and William A. Davis reappointed Special Representative of the Association.

Sanitary Analysis of the Atmosphere

With Especial Reference to Crowded Apartments

BY JULIUS TAUSSIG

In considering the condition of the atmosphere from a sanitary standpoint, we need only to see in what proportion carbon dioxide and water vapor are present. Carbon dioxide is a gas, without taste or smell, heav-

ier than air, but is not poisonous. It is constantly being produced by combustion, by fermentation, by living organisms, whether plants or animals. Plants, while producing carbon dioxide, again absorb it in the process of nutrition by taking its carbon into their tissues and yielding its oxygen to the air. The carbon drawn from the air, together with hydrogen and oxygen, forms the wood of the tree, the stalk of the plant and the fruit, and these, when eaten or burned, again result in carbon dioxide and water. The lungs take out the oxygen from pure air and give out carbon dioxide. It is estimated that every healthy man exhales about 1,346 cubic inches of carbon dioxide per hour and that exhaled air contains nearly one hundred times as much carbon dioxide as when inhaled.

Water vapor, the result of the process of evaporation of the vast watery surfaces which are always in contact with the air, is the most variable constituent, owing to the changing capacity of air for moisture at different temperatures. Since the human body is continually throwing off moisture from the skin and lungs, and since this exhalation is an important factor in the bodily economy, the presence of too much or too little moisture in the air exercises a bad effect. I wish to emphasize the fact that neither carbon dioxide nor water vapor are poisonous. They indicate simply the condition of the air; that is, they show us whether sufficient oxygen is present in the air to preserve a healthy condition of the human system.

In the following pages are given the result of tests recently made by the writer to determine the amount of carbon dioxide in the air in certain buildings in Cleveland, Ohio. The method used in these tests was that of Pettenkoper.

Into a large, dry, nearly ten liter bottle of known capacity, and fitted with a rubber cork, was pumped a volume of air for several minutes. The bellows used was a large, eight-inch leather bellows, fitted with a long rubber tubing, which extended to the bottom of the bottle. After pumping air into the bottle for some time, 50 cc. of a solution of BaO_2H_2 was measured off and quickly transferred to the large bottle. The bottle was corked and continuously shaken and turned so that all the carbon dioxide could come in contact with the solution of BaO_2H_2 which was previously introduced. The carbon dioxide combined with the BaO_2H_2 and formed $BaCO_3$, an insoluble compound. After thorough shaking, the rubber cork was removed, 25 cc. of this solution were extracted with a pipette and a few drops of phenolphthalein added, which acts as an indicator, and the excess of BaO_2H_2 quickly titrated with a standard solution of oxalic acid. In taking the samples of air, corrections were made for the volume of the bottle at O° C. and 760 mm. pressure, taking into account that every gas expands 1/273 of its volume for every degree rise in temperature.

From all these readings, the percentage of carbon dioxide was calculated as follows:

.93 cc. oxalic acid = 1 cc. CO_2.
25 cc. BaO_2H_2 = 22 cc. oxalic acid.
25 cc. $BaO_2H_2 + CO_2$ = 19

3 cc. oxalic acid used.

$$\frac{3 \text{ cc.}}{.93} = 3.2 \times 2 = 6.4 \text{ cc. } CO_2.$$

Volume of bottle, = 9950 cc.
Temperature, = 22° C.
Barometer, = 74.6
Reducing volume to o°, 760 mm.

$$\frac{74.6}{76} \times \frac{273}{295} \times 9950 = 9054.5 \text{ cc. volume.}$$

9054.5 : 6.4 :: 10,000 : x.
x = 7.6 parts CO_2 in 10,000.

In similar manner the other results were obtained. In the determinations for relative humidity, use was made of a standard wet- and dry-bulb hygrometer, similar, in every respect, to those used in the U. S. Weather Bureau.

Having discussed the methods and principles employed, I will now give, in brief, an account of the work undertaken and the results obtained therefrom. The object of this work was to make a sanitary analysis of the air in as many school rooms, churches, theaters, lodging houses, factories, jails, and, in fact, as many public buildings as possible, with a view of ascertaining just what condition the

1—Date of Observation. 2—Place. 3—Time. 4—Temperature, C. 5—Barometer. 6—Number of Students in Room. 7—Number of Windows and Doors. 8—Parts of Carbon Dioxide in 10,000. 9—Relative Humidity. 10—Remarks.

1 Date.	2 Place.	3 Time.	4 T.C	5 Bar.	6 Stu.	7 Win. & Drs.	8 CO_2	9 R H	10 Remarks.
Mar. 23	Workhouse.....	2.00 p.m.	20°	75.			5.2		Test made in prisoner's cell. East Cell, Male Ward.
		2.30 p.m.	20°	75.			8.2		Test made in prisoner's cell. West Cell, Male Ward.
		3.00 p.m.	20°	75.			8.3		Test made in Cell 17, Female Ward.
Mar. 24	Doan School.....	2.00 p.m.	19°	74.3	48	8 windows 2 doors	11.9		Test made in Room 10.
		2.30 p.m.	20°	74.3	48	7 windows 2 doors	8.6		Test made in Room 8.
		3.00 p.m.	22°	74.3	34	4 windows 2 doors	17.4		Room 12. This room was badly overcrowded.
		3.30 p m.	24°	74.3	50		11.7		Room 1.
Mar. 25	Palisade.....	8.00 a.m.	17°	74.9			11.1		Room 184. (This is a cheap lodging house.)
		8.20 a.m.	18°	74.9			14.2		Taken in the recreation room.
	Light & Hope Mission	8.40 a m.	24°	74.9			16.3		Here 23 colored men were just getting out of bed.
	Bull Pen at Cen. Police	9.10 a.m	21°	74.9			19.2		12 prisoners were locked in this room when test was made.
	Salvation Army B'l'g	9.30 a.m.	19°	74.9			9.8		30 beds in room but no one sleeping there at the time.
Mar. 27	Bull Pen at Coun. Jail	2.00 p.m.	20°	75.			9.4	48%	50 men in pen.
	County Jail.....	2.25 p.m.	23°	75.			8.3		Cell 18, Male Ward.
		3.00 p.m.	23°	75.			16.3	31%	Cell 12, Female Ward.
									A closet was in this cell.
	Land Title Abstract Co	3.30 p.m.	27°	75.			11.9	36%	100 girls working here.
	Star Theater.....	10.00 p.m.	22°	75.			13.3	39%	
	Council Chamber....	8.30 p.m.	22°	75.			10.3	39%	About 300 people present and meeting was in session 1 ½ hrs.
Mar. 28	Cleveland Theatre...	2.40 p.m.	24°	75.			14.2	44%	Taken in Balcony.
		3.25 p.m.	24°	75.			14.	56%	Taken in dressing room under the stage.
	Amsfield Cloak Co...	4.00 p.m.	27°	75.			11.2	44%	70 people working in this room.
Mar. 30	Pierce Shoe Co.....	2.00 p.m.	24°	75.3			10.6		150 girls working in this room.
	Sunshine Cloak Co..	2.30 p.m.	22°	75.3			9.		150 people working in this room.
	Prince Biederman Cloak Co.	3.00 p.m.	23°	75.3			9.		200 people here.
	Lyceum Theatre	3.50 p.m.	25°	75.3			13.6		Every seat was taken.
Apr. 3	Levy & Stearn.....	2.15 p.m.	21°	74.			11.1		Test made in basement.
	Mav Co.....	3.00 p m.	22°	74.			8.7		Test made in basement.
	Kent Co	3.45 p.m.	22°	74.			10.2		Test made in basement.
Apr. 5	Kinsman St. School..	2.20 p.m.	16°	74.	30	8 windows 2 doors	9.		Basement room, all windows and doors open.
		3.00 p.m.	21°	74.	42	4 windows 1 door	12.9		Room B, all windows and doors closed.
		3.30 p.m.	21°	74.	21	4 windows 2 doors	13.6		Room 12. All windows and doors closed.
Apr. 6	Fowler St. School....	3.00 p.m.	22°	74.	35	5 windows 1 door	9.6	22%	This is a basement room and doors and windows were open.
		3.20 p.m.	23°	74.	25	5 windows 2 doors	14.4	31%	The windows in this basement room were slightly open.
		3.40 p.m.	22°	74.	45	5 windows 2 doors	8.2	37%	Room 6. up stairs. Windows open.
Apr. 8	Wachter & Anzeiger	4.00 p.m.	21°	73.9			7.1	27%	Window open in this office
Apr. 9	Cong. Church, cor. Logan & Euclid...	11.30 a.m.	20°	74.			11.3	20%	700 people were in this church at time this test was made.
Apr. 10	Rockwell St. School.	1.30 p.m.	23°	73.6	35	4 windows 2 doors	11.4	48%	Room 3.
		2.00 p.m.	23°	73.6	47	4 windows 3 doors	10.9	61%	Room 4. Windows partly open.
		2.30 p.m	24°	73.6	34	4 windows 3 doors	14.6	47%	Room 1. Windows partly open.

1—Date of Observation. 2—Place. 3—Time. 4—Temperature, C. 5—Barometer. 6—Number of Students in Room. 7—Number of Windows and Doors. 8—Parts of Carbon Dioxide in 10,000. 9—Relative Humidity. 10—Remarks.

1 Date.	2 Place.	3 Time.	4 T.C	5 Bar.	6 Stu.	7 Win. & Drs.	8 CO_2	9 R H	10 Remarks.
Apr. 10	Rockwell St. School.	3.00 p.m.	23°	73.6	30	4 windows 2 doors	12.3	42%	Room 13. Windows partly open.
Apr. 11	Mayflower School....	1.30 p.m.	23°	73.1	40	8 windows 2 doors	10.9	39%	Room 29. Windows closed. Smead Ventilating System.
		1.45 p.m.	21°	73.	40	2 windows 1 doors	11.2	44%	Room 28. 3 windows open.
		2.00 p.m.	21°	73.1	24	8 window 1 door	14.4	42%	Room C. This room is only 20 ft. x 8 ft. Altogether too small.
		2.40 p.m.	20°	73.1	48	4 windows 1 door	13.	39%	Room 6. Window open. No system of ventilation.
		3.00 p.m.	24°	73.1	35	6 windows 2 doors	13.2	38%	Room 9. Windows open.
		3.20 p.m.	21°	73.1	15	6 windows 1 door	18.9	61%	This was rented room in the rear of an old church and contained a gas stove with no pipes for exit of burned gas.
Apr. 12	South High School...	10.00 a.m.	20°	73.8	20	5 windows 3 doors	5.9	27%	Physical Laboratory. Test made near one of the inlets.
		10.20 a.m.	20°	73.8	20	5 windows 3 doors	11.8	27%	Taken at outlet.
		11.00 a m	20°	73.8	20	5 windows 3 doors	15.1	27%	Taken 3 feet from ceiling.
		11.20 a.m	25°	73.8	20	10 windows 2 doors	12.7	20%	Room 21. Test made one foot from ceiling.
		11.45 a.m.	25°	73.8	20	10 windows 2 doors	8.4	20%	Room 21. Test made at level of students' heads.
	Clark Ave. School...	1.40 p.m	23°	73.8	39	8 windows 2 doors	12.4	39%	Room 14. Use Smead System.
		2.10 p.m	20°	73.8	45	8 windows 2 doors	13.8	37%	Room 5. Windows slightly open.
		2.30 p.m.	24°	73.8	44	8 windows 2 doors	12.3	26%	Room 6.
		2.45 p.m	24°	73.8	35	6 windows 2 doors	15.7	17%	Room 3. This is the old part of the bnilding and has no system of ventilation.
		3.05 p.m.	23°	73.8	49	6 windows 2 doors	16.2	35%	Room 9. Conditions as above in Room 3.
		3.20 p.m	24°	73.8	52	6 windows 2 doors	18.2	56%	Room 1. No system of ventilation I had all windows closed for ten minutes and then made the test.
		3.30 p.m.	20°	73.8	49	6 windows 2 doors	11.6	26%	Room 4.
Apr. 18	Fairmount St. School	2.00 p m	19°	75.	42	5 windows 2 doors	10.	30%	Room 8 and about 28 ft. x 33 ft. This room had 8 inlets and 7 outlets all on level of floor. This test was made at one of the outlets. Smead system.
		2.20 p.m.	19°	75.	42	5 windows 2 doors	17.	30%	Room 8. But test was made 3 feet from ceiling.
		2.30 p.m.	19°	75.	42	5 windows 2 doors	10.	30%	Same room. Test made at level of students' heads.
		2.45 p.m	22°	75.	50	7 windows 2 doors	13.4	26%	Room 16. Test made 3 feet from ceiling.
		3.00 p.m.	22°	75.	50	7 windows 2 doors	10.2	26%	Room 16. Test made at one of the exits.
		3.10 p.m.	22°	75.	50	7 windows 2 doors	13.1	26%	Room 16. Test made at level of students' heads.
		3.20 p.m.	22°	75.	48	6 windows 2 doors	13.1	25%	Room 5. Test mads 3 feet from ceiling.
		3.30 p.m.	22°	75.	48	6 windows 2 doors	10.7	25%	Room 5. Test made at exit.
Apr. 19	Scranton School.....	1.35 p.m.	22°	74.6	36	7 windows 2 doors	14.5	29%	Room 15. 27 ft. x 33 ft. Smead system. 1 inlet and 7 outlets on level of floor. Test made 4 feet from ceiling.
		1.50 p.m.	22°	74.6	36	7 windows 2 doors	10.4	29%	Room 15. Test made at exit.

1—Date of Observation. 2—Place. 3—Time. 4—Temperature, C. 5—Barometer. 6—Number of Students in Room. 7—Number of Windows and Doors. 8—Parts of Carbon Dioxide to 10,000. 9—Relative Humidity. 10—Remarks.

1 Date.	2 Place.	3 Time.	4 T.C.	5 Bar.	6 Stu	7 Win. & Drs.	8 CO_2	9 R H	10 Remarks.
Apr. 19	Scranton School.....	2.00 p.m	22°	74.6	36	7 windows 2 doors	11.8	29%	Room 15. Test made at level of students' heads.
		2.15 p.m.	22°	74.6	38	9 windows 2 doors	10.7	28%	Room 4. Test made on level with students' heads.
		2.30 p.m.	22°	74.6	38	9 windows 2 doors	11.4	28%	Room 4. Sample taken at exit.
		2.45 p.m.	22°	74.6	38	9 windows 2 doors	13.	28%	Room 4. Sample taken 4 feet from ceiling.
		3.10 p.m	26°	74.6	42	6 windows 2 doors	14.9	23%	Room 2. Test made at exit.
		3.20 p m.	26°	74.6	42	6 windows 2 doors	15.5	23%	Room 2. Test made 4 feet from ceiling.
Apr. 20	Sowinski School.....	1.40 p m.	20°	73.6	41	8 windows 2 doors	10.2	59%	Room 3. 28 ft. x 33 ft. Smead system. Test made at level of heads.
		1.55 p.m.	20°	73.6	41	8 windows 2 doors	12.7	59%	Room 3. Test made at exit.
		2.10 p.m.	20°	73.6	41	8 windows 2 doors	15.1	59%	Room 3. Test made 1 foot from ceiling.
		2.35 p.m.	21°	73.6	40	8 windows 2 doors	15.6	60%	Room 4. 20 ft. x 30 ft. Sample taken at level of heads.
		2.50 p.m	21°	73.6	40	8 windows 2 doors	12.2	60%	Room 4. Sample taken at exit.
		3.00 p.m.	21°	73.6	40	8 windows 2 doors	16.	60%	Room 4. Sample taken one foot from ceiling.
		3.15 p.m	24°	73.6	42	7 windows 2 doors	13.1	50%	Room 23. Use Bartlett system and inlet is about 6 ft. from floor. Taken at exit.
		3.25 p m.	24°	73.6	42	7 windows 2 doors	17.8	50%	Room 23. Taken one foot from ceiling.
Apr. 24	Willson School.....	1.40 p.m.	20°	74.6	38	8 windows 2 doors	14.7	44%	Room 15. 28 ft. x 34 ft. Use Johnson system and has 1 inlet at ceiling and 7 outlets at the floor. Sample taken 4 feet from ceiling.
		1.55 p.m.	20°	74.6	38	8 windows 2 doors	17.6	44%	Room 15. At level of heads. This system uses two large electric fans, but janitor had shut them off to save expenses.
		2.10 p.m.	20°	74.6	38	8 windows 2 doors	16.5	44%	Room 15. At exit.
		2.25 p.m.	22°	74.6	40	8 windows 2 doors	7.6	37%	Room 12. At exit. Fans were now turned on.
		2.40 p.m.	22°	74.6	40	8 windows 2 doors	9.9	37%	Room 12. Taken at level of heads.
		3.00 p.m.	22°	74.6	40	8 windows 2 doors	11.7	37%	Room 12. Taken 4 feet from ceiling.
		3.20 p.m	21°	74.6	42	8 windows 2 doors	16.5	39%	Room 2. Test made at exit.
		3.30 p.m.	21°	74.6	42	8 windows 2 doors	16.1	39%	Room 2. Test made 4 feet from ceiling.
Apr. 25	Case Woodland School..	1.40 p.m.	22°	74.2	32	5 windows 1 door	11.8	25%	Room 18. 30 ft. x 20 ft. 1 inlet and 1 outlet, one directly above the other. Test made at level of heads.
		1.55 p.m.	22°	74.2	32	5 windows 1 door	10.4	25%	Room 18. Taken at the exit, which is about 3 ft. x 2 ft.
		2.15 p.m.	22°	74.2	32	5 windows 1 door	12.9	25%	Room 18. Taken 4 feet from ceiling.
		2.25 p.m.	22°	74.2	35	8 windows 1 door	9.8	26%	Room 7. At level of students' heads.
		2.35 p.m	22°	74.2	35	8 windows 1 door	8.9	26%	Room 7. At exit.
		2.50 p.m.	22°	74.2	35	8 windows 1 door	13.8	26%	Room 7. Test made four feet from ceiling.
		3.05 p.m.	22°	74.2	40	5 windows 1 door	15.1	29%	Room 3. Taken at exit.
		3.20 p.m.	22°	74.2	40	5 windows 1 door	15.6	29%	Room 3. Test made at 4 feet from ceiling, as far away from inlet as possible.

air was in, and if bad, to find out how it could be improved.

Among the buildings first visited was the Cleveland Workhouse, and there, in the presence of the doctors, several tests were made in the prisoners' cells. Strange to say, the condition of the air in this institution was far better than in many of our public schools.

The next test was made in one of our most modern schools, and the air in some of these rooms was found to be quite bad, owing to their overcrowded condition and the improper working of the ventilating apparatus. Results from the older buildings, such as Brownell, Mayflower, Kinsman and Fowler, showed that all these buildings were badly in need of better ventilation. It was found that the condition of the air in many rooms could be improved if the teachers in charge of the rooms would use better judgment in the use of the windows.

After making air tests in some of the modern school buildings and finding the conditions of the air practically the same as in the older school buildings, it was evident that the systems of ventilation now in operation in the buildings of recent construction are a failure. The modern buildings all have some improved method of ventilating, but, unfortunately, they do not come up to expectations.

All of these new systems have one inlet for fresh air and from one to eight outlets. In some cases, the inlets were located near the floor, in some cases in the middle of the wall, and in some rooms near the ceiling; while the outlets were always at the bottom of the room. In some of the school rooms the position of the inlets and outlets were surprisingly close together.

Tests were then made at the outlets, at the level of the students' heads and at the ceiling, and the condition of the air near the ceiling was found to be nearly twice as bad as that near the outlet. In short, a straight channel was formed from the inlet to the outlet, so that very little of the fresh air diffused through the room. In many buildings the amount of air forced into the rooms was insufficient. All gases expand when heated and, as expected, the greatest amount of carbon dioxide was at the ceiling, and as soon as the temperature of the room cooled down, this carbon dioxide would descend upon the heads of the students and be breathed again. This would seem to show, without a doubt, that the outlets for the air should be at the ceiling and not on the floor.

In making air tests at some of the other places, such as the Cleveland Lyceum and Star Theater, lodging houses and factories, the results showed that these also are in need of better ventilation.

The results of the experiments are found in the accompanying tables, in which full particulars and the results obtained are given.

From these results it can readily be seen that improvements in the methods of ventilating these buildings are necessary if proper ventilation means the passage of a large volume of fresh air through a small space without causing a draft. From the many experiments performed, I should draw the following conclusions:

1st. Some form of mechanical ventilation is the only remedy for schools and auditoriums, lecture rooms and all enclosed spaces occupied by a number of persons at one time, in order to supply at least 1,800 cubic feet of air per hour for each person. It is rather difficult to place a limit as to the amount of carbon dioxide allowable in such buildings, it depending entirely upon conditions of the place and number of occupants. However, a fair limit as to the amount of carbon dioxide in school rooms would be between eight and nine parts in 10,000.

2d. Since the temperature of the air which we exhale is higher by about 25° than the temperature of the room, it will naturally rise, and from the results of some experiments at different levels of the room, I found this to be true—that is, the amount of carbon dioxide at the ceiling was

much greater than that near the exit. Nine-tenths of the problem of ventilation would be solved if sufficient inlets for fresh air would be placed near the floor and the exits at the ceiling. In every case the contrary conditions existed. That is, the inlets were above the outlets.

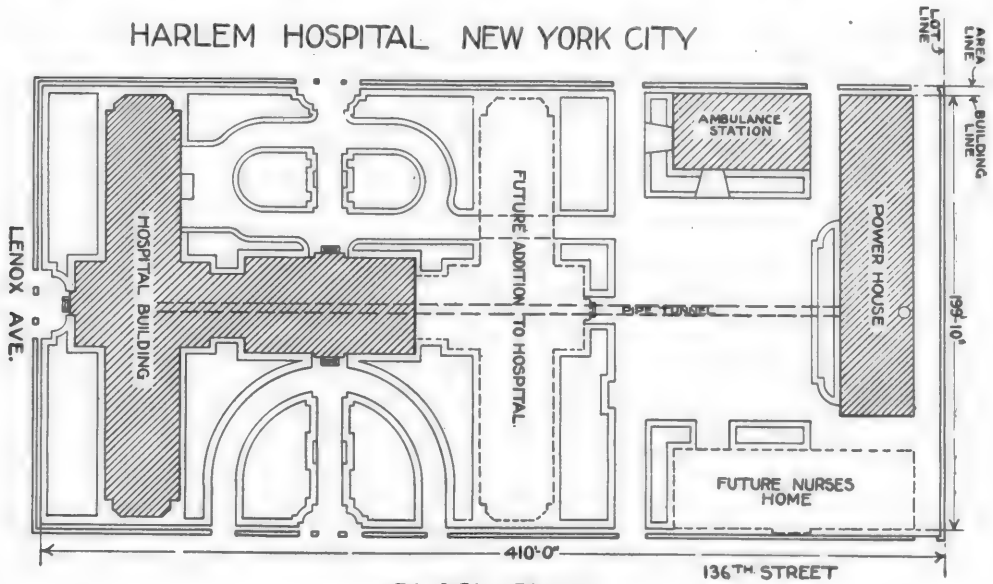
3d. In many of the rooms the inlets and outlets for the air were placed so close to each other that a straight channel of fresh air was forced from inlet to outlet, while near the center of the room the air was bad.

4th. It is difficult to place a limit upon the amount of vapor allowable in the air, results showing that it ranges all the way from 20 per cent. to 60 per cent. However, the best authorities on this matter claim that a relative humidity of 60 per cent. is the most comfortable for house purposes.

Heating and Ventilating of the New Harlem Hospital, New York City

The Use of Tunnels in the Installation of Ventilating Ducts

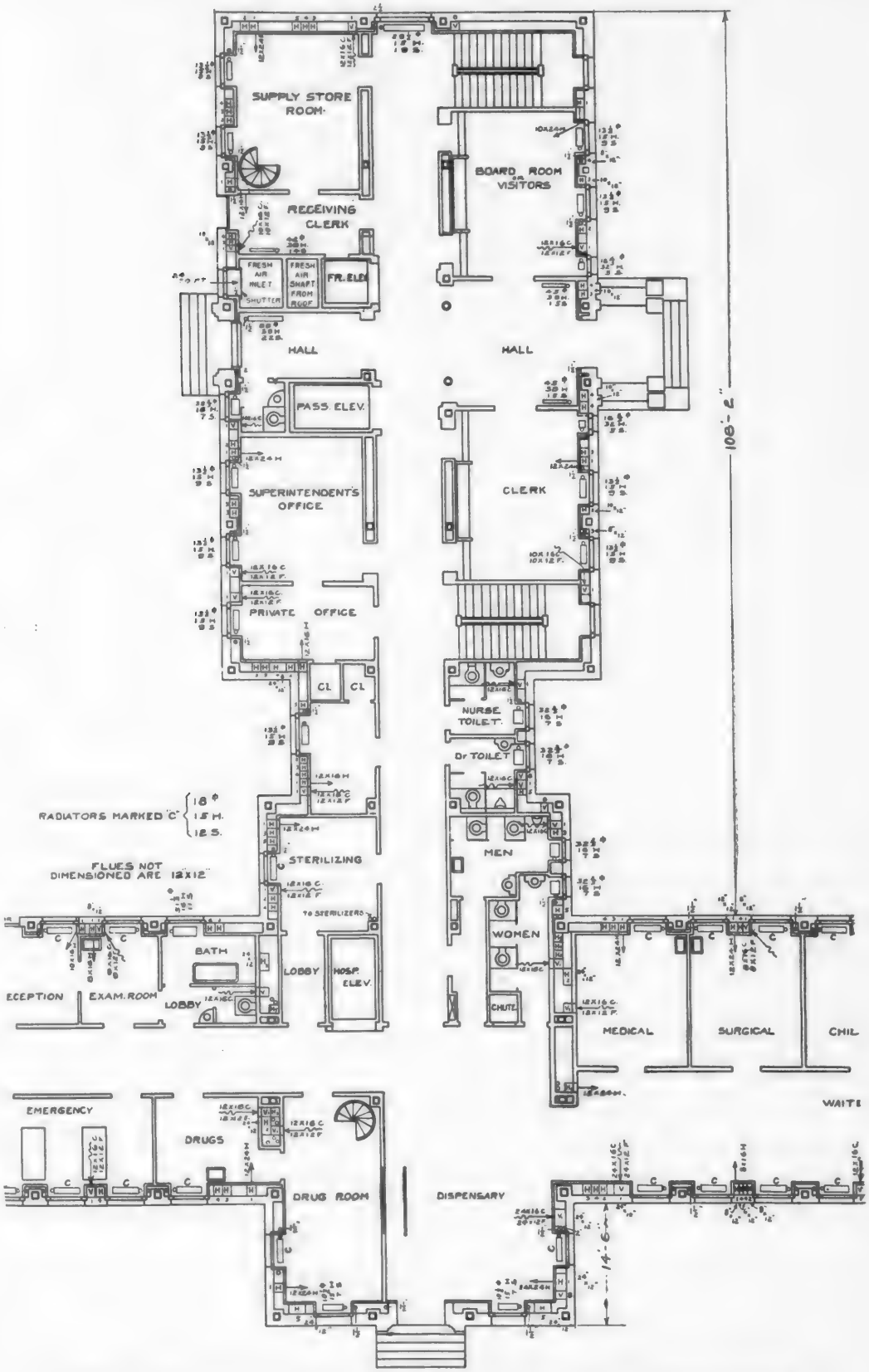
A distinct departure from the ordinary methods of installing steam heating and ventilating apparatus in large buildings, in this country, at least, may be seen in the plant of the new Harlem Hospital, in New York City. Indeed, so unusual are many of the features connected with this plant that they may be said to constitute a precedent, in many respects, in the advance of the science, especially as regard the ventilating arrangements.



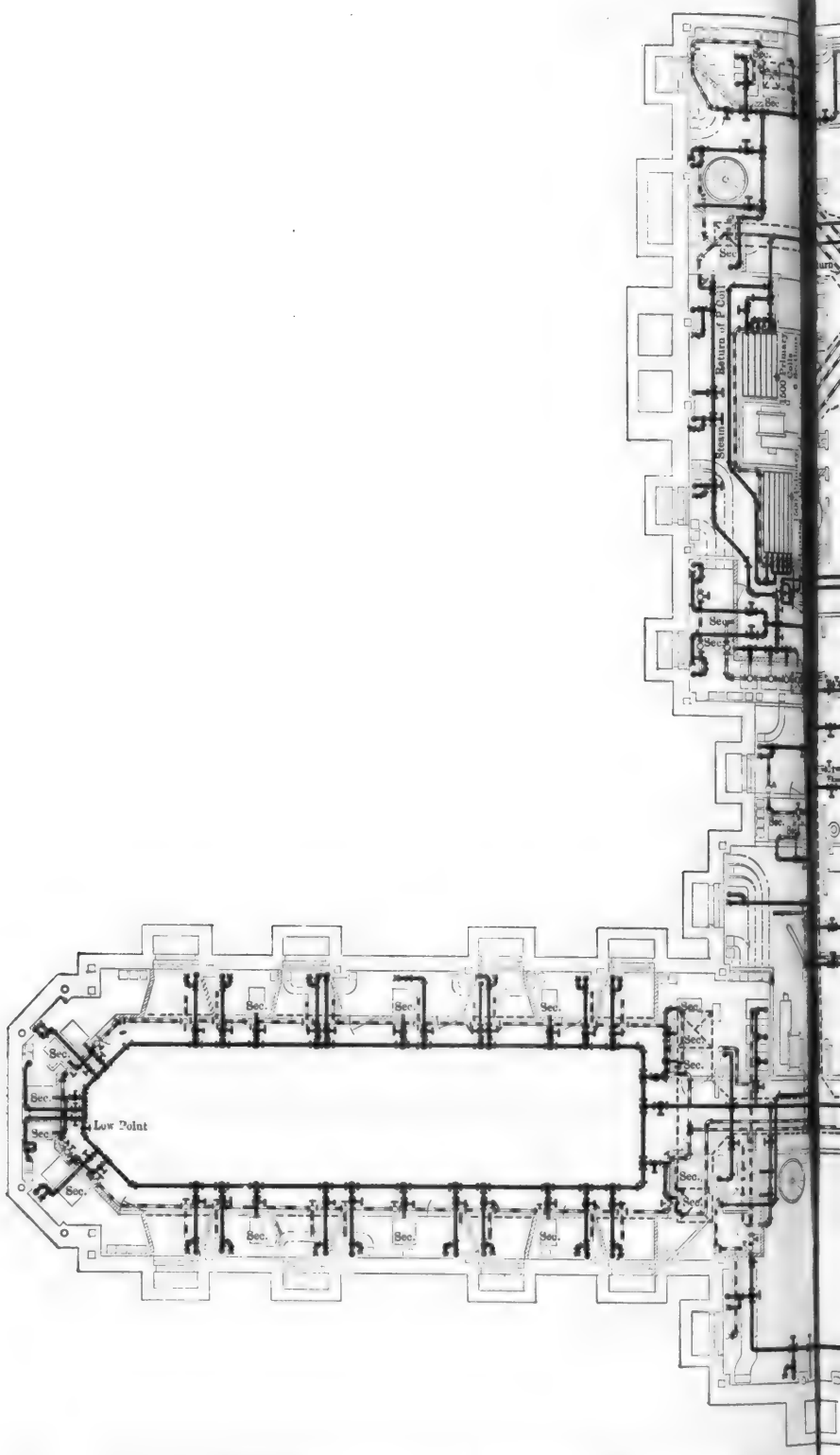
BLOCK PLAN.

One problem solved, in this instance, was the elimination of galvanized iron ventilating ducts in the basement of the building, thus securing a free passage and a neat and clean cut effect in the appearance of the plant itself. Another achievement scored in this plan is the elimination, to a large degree, of sheet metal in the construction of the ventilating ducts, an advantage that will be generally recognized.

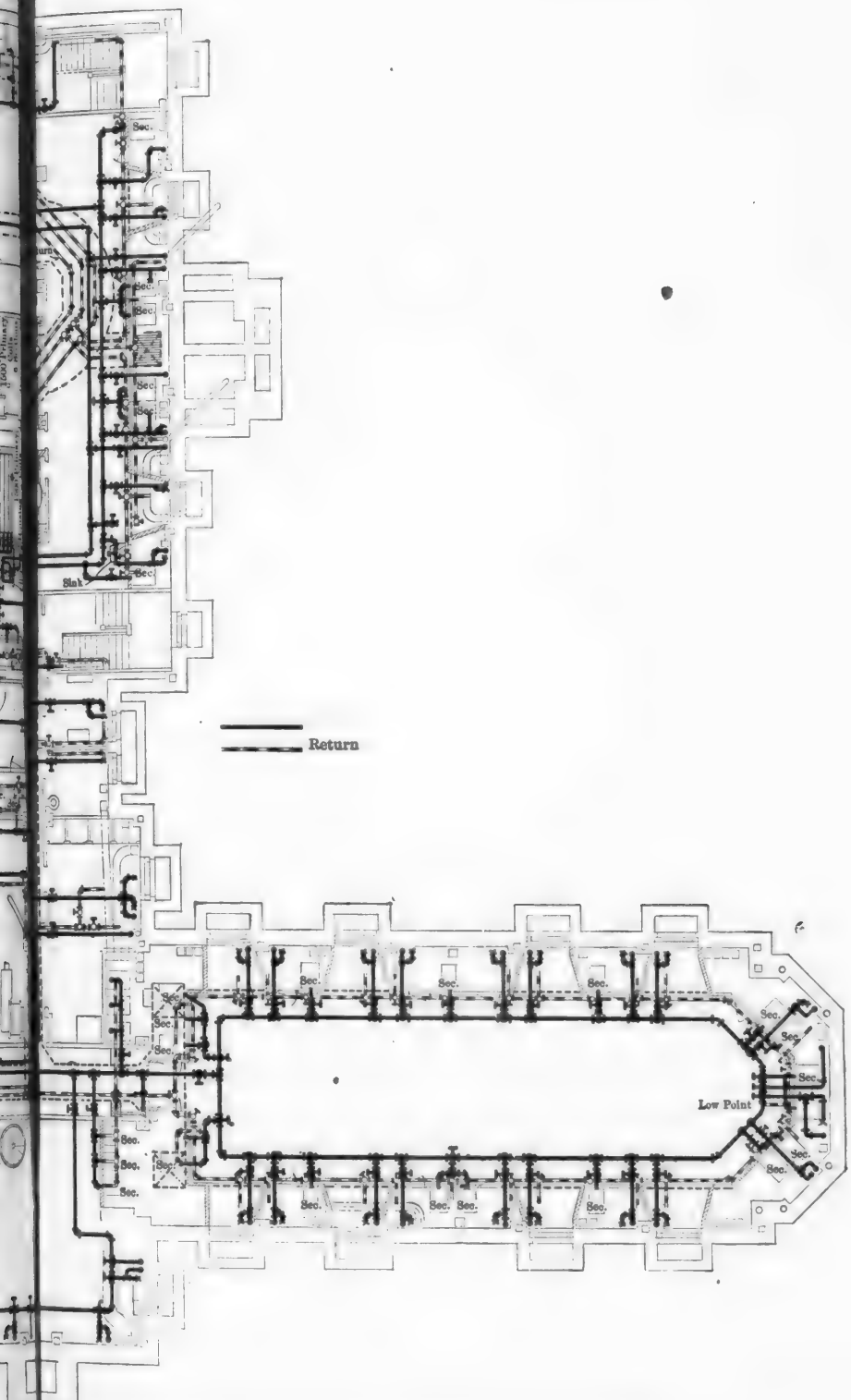
As will be noted from the basement plans, reproduced on pages 20 and 21, the fresh air is taken in through a window in the rear of the main section of the building, which opens into



TYPICAL FLOOR PLAN OF NEW HARLEM HOSPITAL, SHOWING CONSTRUCTION OF VENTILATING FLUES



BASEMENT FLOOR PLAN, NEW HARLEM HOSPITAL. SHOWING TH



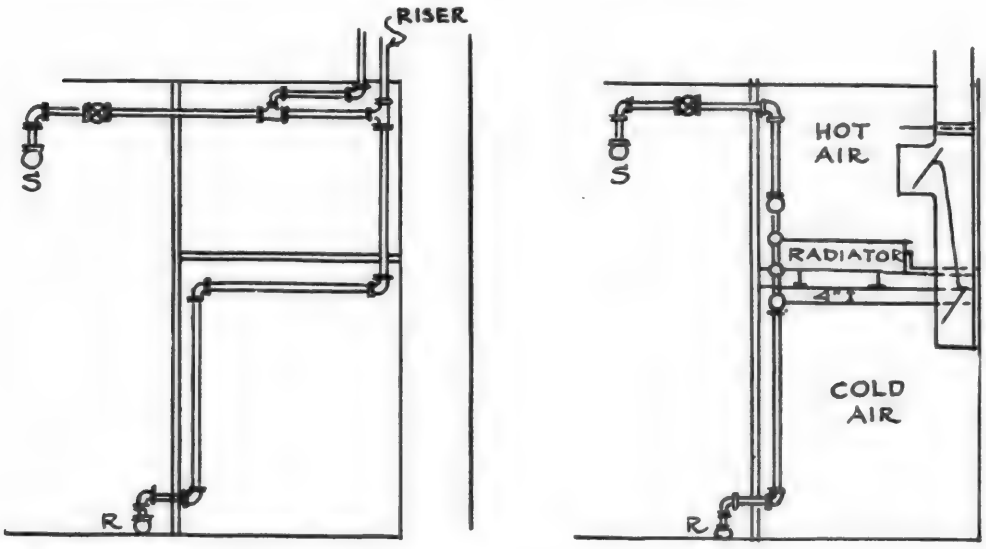
OWING THOD OF INSTALLING VENTILATING DUCTS AND STEAM PIPING

a small room on the first floor. This room is the settling chamber. The room is two stories in height. There is an additional source of cold air supply coming through a shaft from the roof, also terminating in the settling chamber in the basement. Dampers are provided for both inlets, whereby the cold air supply from either point can be separately closed, as desired.

In the settling chamber itself provision has been made for maintaining a few inches of water on the floor, into which the dust falls.

The primary coils are in two groups of six sections each, four rows of 1-inch pipe to each section. The pipes are all five feet long, so that the total heating surface is about 3,000 square feet. The coils are housed and set up in a vertical position, so that their upper ends come close to the ceiling. The space underneath them is arranged for a by-pass. A pair of iron shutters, made to lift up and down like window sashes, are used to form switch valves and dampers to each group of coils. The intention of these dampers is to provide not only switch valves, but means of entirely shutting off the air from any group of coils, hence each set is like the upper and lower sash of a window, so that when one is up and the other is down the air is entirely shut off from the coils, but when worked together they form a switch damper.

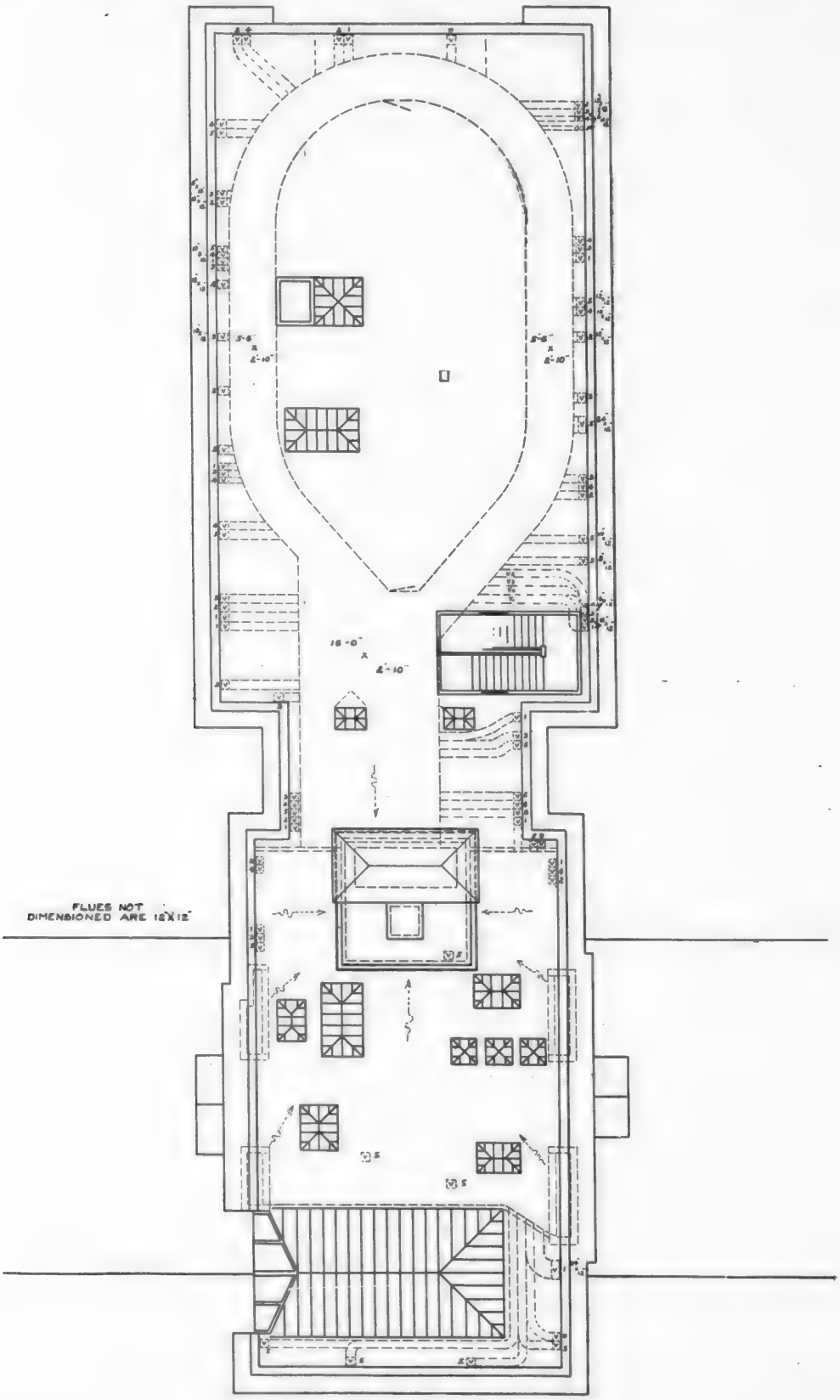
Two centrifugal forward direction 90-inch duplex cone fans are located here, each capable of furnishing 2,000,000 cubic feet of air per hour and each operated by a 12 H. P. direct connected motor of the horizontal type, and supplying variations of speed from 250 down to 150 R. P. M.



ARRANGEMENT OF PIPING IN HEATING CHAMBERS IN BASEMENT

As the air leaves the fans it is forced in a downward direction, through gratings in the fan house, into an underground duct, which leads to the side walls of each of the wings, in addition to those of the center building.

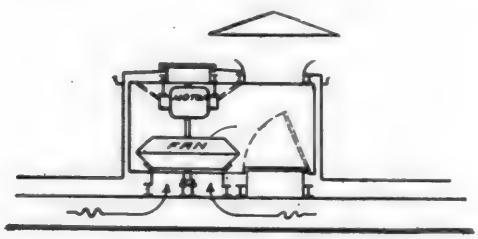
Running along the side walls is an air duct. It is formed by constructing a partition parallel to the outer wall, and reaching from floor to ceiling, except at points where there are windows. Access is had



ROOF PLAN, NEW HARLEM HOSPITAL

to it from the basement proper through metal covered doors located at frequent intervals.

The upper part of the tunnel or duct forms the heating chambers. The heating chambers are decked over and openings made the size of the heaters used, so that the heaters just fill the openings. The radiators are supported at this point by bars resting on I-beams, the ends of which are built into the wall of the building. All connections and valves to the radiators, however, are outside of the walls of the chambers. Each chamber is arranged to supply air to one or more flues. Each warm air flue as it comes through the floor above has a connection the full size of the flue into one of these warm air chambers, while the extension of the flue runs into the lower or cold air chamber.



EXHAUST FAN, NEW HARLEM HOSPITAL

The upper ends of all the ventilating flues are connected with a central chamber underneath a fan on the roof, operated by a motor of the vertical type, but similar in other respects to the motor in the basement. The fan is of the centrifugal forward direction pattern, 90 inches in diameter, with a duplex cone, capable of discharging 2,500,000 cubic feet per hour when running at 250 R. P. M. The by-pass or hatch in the pent house is arranged with chains, pulleys and counterweights, and so adjusted that when it is in an open or closed position, the weight of the hatch is sufficient to have it remain so.

The central chamber mentioned lies beneath the roof under the pent house and extends towards the front of the building. This space is provided with a gangway, so that all flues, shafts and ducts, where they enter, may be reached by passing through the by-pass hatch in the pent house.

The general method adopted for the registers is similar to that used in school work. The heat or inlet registers are about seven feet from the floor. The ventilating registers are near both the ceiling and the floor. The tops of the ceiling registers are about a foot below the ceiling and can be opened or closed at will.

The floor vent openings are without registers, in the usual sense, but are provided with a special box and frame the full width of the flue. These boxes are made of cast iron, and are practically iron elbows, with a bracket on the bottom of the elbow to secure a proper support at the floor level. The boxes extend 6 inches up the flue, and are joined tightly to the flues themselves. They are easily cleaned and thus serve to prevent the accumulation of dust.

The auxiliary heating of the hospital, outside of the warm air supplied in the ventilating, is accomplished by means of direct radiators. Steam is furnished from a power house elsewhere on the grounds and enters the buildings at the point marked on the basement plan. Here the main pipe rises vertically to the ceiling, and runs thence to each of the wings.

The return pipes from the wings run along the floor outside of the heating chambers, and at appropriate points drop into the fresh air tunnels, which they follow to the point *A*. Other return pipes follow the same course as far as the fresh air ducts and there connect with the main return. The direct radiators are on the one-pipe system.

An interesting feature, in this connection, is the use of a special device where the rising lines pass through the floors. It consists of a slip tube

and a floor and ceiling plate, with packing to fill the intervening space, and is intended to prevent the passage of air from one floor to another. The tube is threaded on both ends and the floor and ceiling plates are screwed on the top and bottom and have also a device for holding an asbestos packing between the slip tube and the steam pipe. This arrangement is also used on the vertical air pipes.

In addition to the heating pipes in the basement, there is also a "summer" high pressure steam pipe which supplies steam to all high pressure fixtures and for other purposes, such as kitchen, sterilizers, etc., which are in use the entire year.

All sources of indirect heat are automatically controlled, as are the sources of direct heat in most of the rooms and halls which are not supplied by indirect heat. The primary coils are also controlled, section by section, by thermostatic regulation.

Each indirect heat flue is furnished with an appropriate switch damper, automatically controlled. In the case of the large wards there are two or more thermostats to control the indirect and the same number to control the direct radiation.

Each fan chamber is provided with a thermometer so arranged as to automatically notify the engineer when the temperature in the ducts has gone either above or below the range of the desired temperature.

The consulting engineer of the building is Mr. William J. Baldwin and the constructing engineers Rossman & Bracken Co., of New York.

Improper Circulation of Air Through Hot Blast Heaters

By J. H. Kinealy

One of the many causes which tend to bring about a failure to heat properly in the case of a hot blast apparatus is improper circulation of air through the heater. By improper circulation is meant a circulation such that a part only of the heater is brought in contact with the air passing through it, and a part of the heater is called upon to do the whole work that the heater is designed to do. That is to say, if a heater be designed of such a size and depth as to heat a certain number of cubic feet

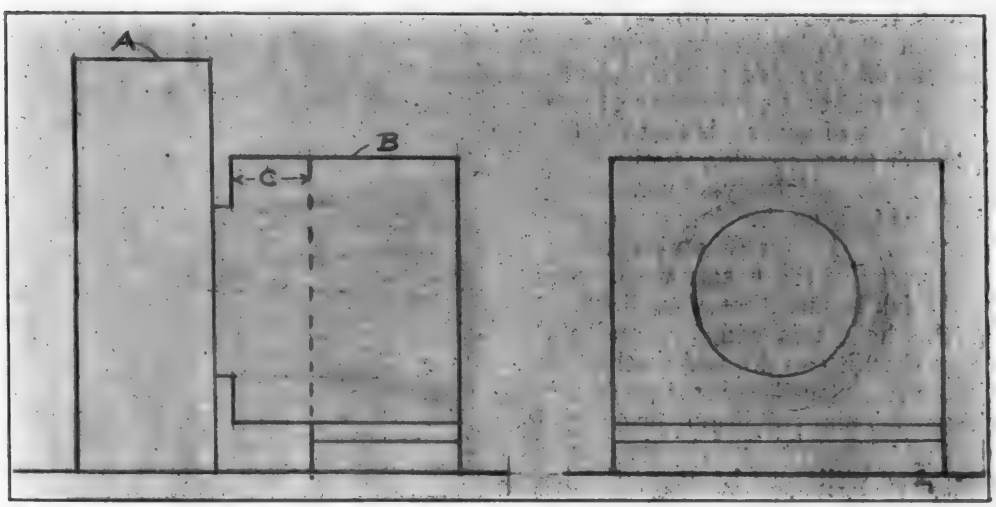


FIG. 1 FIG. 2

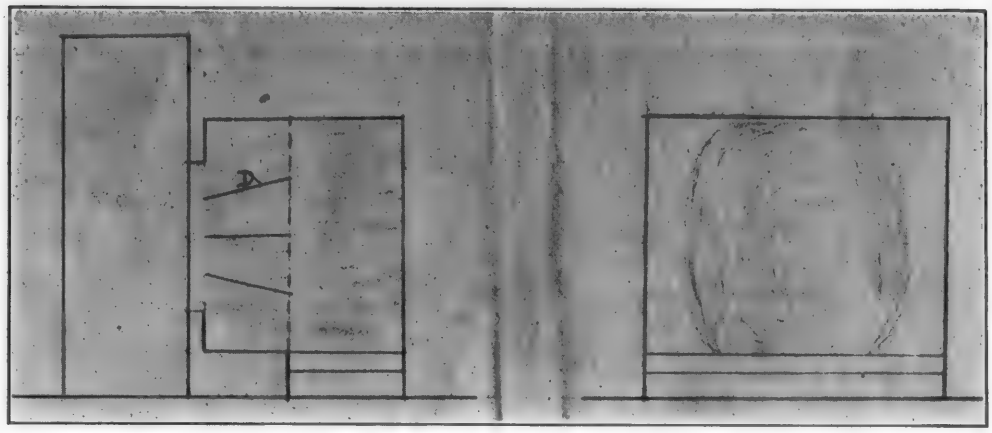


FIG. 3

FIG. 4

of air per minute through 100 degrees, it is evident that, if because of faulty circulation of the air through the heater, the air be made to come in contact with only two-thirds of the heater, it cannot be expected that the air will be heated through 100 degrees. It is more likely to be heated through about 70 degrees.

This condition of faulty circulation is an extremely common one and it is due to it that the heating power of heaters in actual service does not appear to be as great as that determined by experiment in the laboratory. When an experiment is made in the laboratory, care is taken to proportion the heater and to distribute the air coming to it in such a way that every part of the heater will be brought in contact with its proper amount of air and every part of the heater will be made active and effective and will do its full share of work. The result, of course, is that the heater under these conditions will show a very high efficiency, much higher than will often be found in actual practice. In many plants the arrangement of the heater with respect to the fan is such that a small portion of the heater is called upon to do more than it can do, while other portions are not called upon to do anything. This condition prevails in heaters through which the air is drawn as well as heaters through which the air is blown. When the air is drawn through a heater it passes through the heater before entering the fan and the heater is usually close to the fan inlet; and when the air is blown through the heater the air enters the fan before it enters the heater and the heater may be either close to the outlet of the fan or far away from it. The closer the heater is to the outlet the less likely is all of the heater to be made to do the work which it ought to do.

The condition which often prevails when the air is drawn through the heater is shown in Fig. 1, where *A* represents the fan, *B* the heater and *C* the distance between the fan inlet and the heater, which is seldom more than $2\frac{1}{2}$ feet. Although the space between the heater and the fan may be large, the stream of air passing through the fan inlet does not occupy this whole space, but the air flows into the inlet from the heater at a high velocity. This stream is only

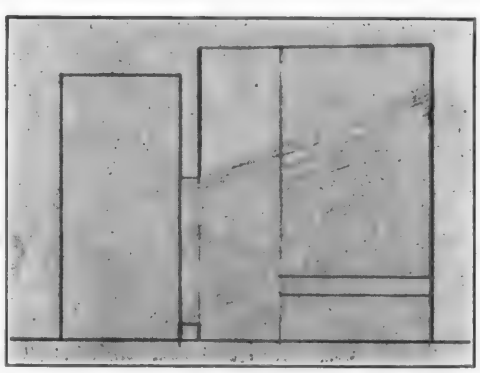


FIG. 5

the size of the inlet at the point where it enters the fan and spreads out as shown in Fig. 1 as it passes through the heater. The amount that the stream of air spreads out while passing through the heater depends upon the size of the heater, the size of the inlet, the depth of the heater in the direction of the flow of the air, and the velocity of the air through the heater as compared to the velocity of the air through the inlet of the fan. The farther the heat is from the fan the greater is the spreading of the stream of air and the more likely is the whole heater to be made to work as it should, and, of course, the more uniform is the flow of the air through the heater.

Fig. 2 shows a view of the heater in Fig. 1, as seen by an observer standing at the fan inlet and looking towards the heater. The heavy circle represents the fan inlet, and the shaded portion represents that part of the heater which is made active by the passage of the air through it. The unshaded portion represents that part of the heater which does little or no work.

If guides are put between the heater and the fan, as shown in Fig. 3, where the guides are marked *D*, a larger portion of the heater is made active and a better heating effect of the air is secured. The portion of the heater which is made active under such a condition is shown in Fig. 4. Here the shaded part represents that portion of the heater which is active and the unshaded part that which does little or no work. The objection to the guides is that they do not increase to any great amount the working portion of the heating and they fill up the space between the heater and the fan inlet so that it is impossible for one to enter this space.

Fig. 5 shows a condition that may exist when the fan is a three-quarter housed fan with the inlet close to the ground and the heater is set some distance above the ground. In such a case the lower portion of the heater is likely to be the only portion that does any work, and as much as one-third of the whole heater may be doing practically no work.

Fig. 6 shows a very common arrangement of heater and fan when the air is blown through the heater—that is, when the heater is in front of the outlet of the fan. In such cases it is necessary to place the heater at a considerable distance from the outlet of the fan, otherwise the air will pass directly from the outlet through the upper portion of the heater. The higher the velocity of the air passing from the fan the smaller is the portion of the heater that is called upon to do work.

In Fig. 7 the shaded part shows the portion of the heater that is likely to be called upon to do work in the case of an arrangement such as is shown in Fig. 6, and the unshaded part shows the portion of the heater that does little or no work. The farther the heater is from the outlet of

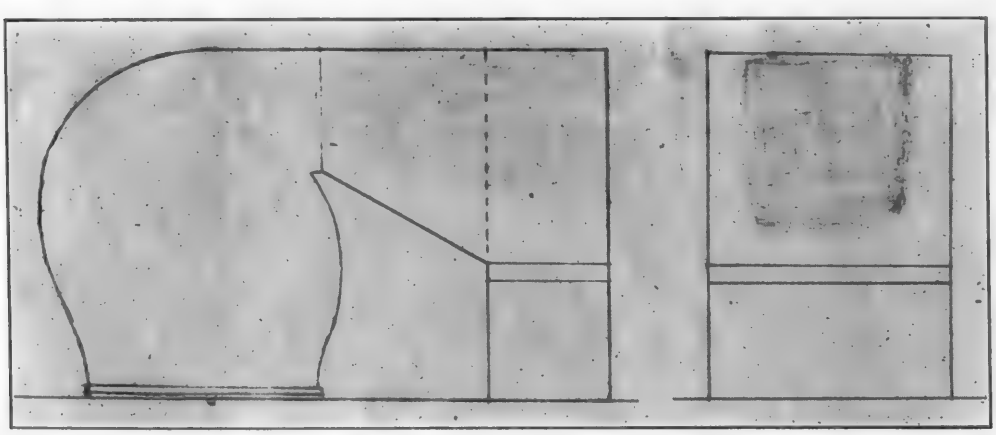


FIG. 6

FIG. 7

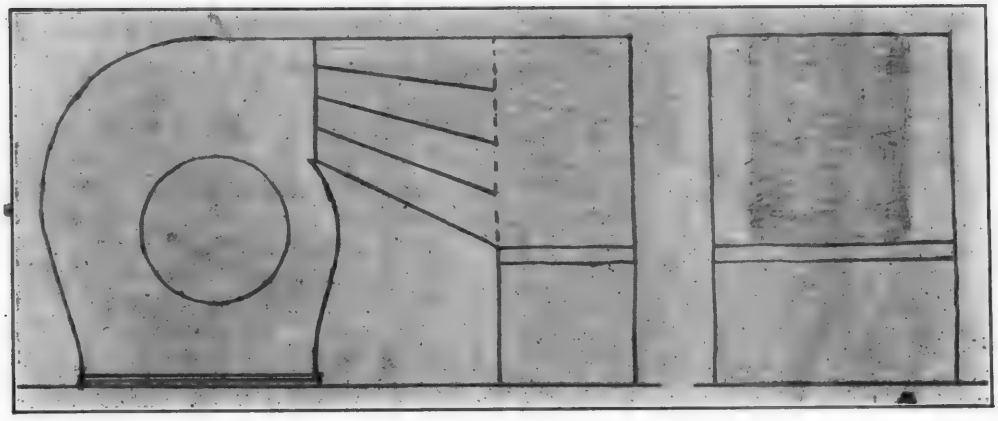


FIG. 8

FIG. 9

the fan and the slower the velocity of the air leaving the fan, the larger is the portion of the heater that does work.

In Fig. 8 is shown guides put between the outlet of the fan and the heater for the purpose of distributing the air over the heater and making a larger part of the heater effective. These guides distribute the air up and down, but do not distribute it sideways, with the result that we get a condition similar to that shown in Fig. 9, where the shaded part represents the portion of the heater that is active and the unshaded part represents the portion of the heater that does little or no work.

It is evident that I have exaggerated the conditions in order that they may be clearly brought out, but I think it is also evident to every one who has had anything to do with hot blast apparatus that the conditions which I have shown are conditions that are sometimes met with. Conditions similar to these, but where a larger portion of the heater is made effective, can be seen in many plants.

Guides are of little value because they distribute the air in one direction only and it is impractical to put in two sets of guides: one to distribute the air in one direction, and the other to distribute the air in another direction. It often happens that because of lack of room it is absolutely impossible to avoid putting the heater close to the inlet or close to the outlet of the fan, and when this is done a condition similar to one of those shown is almost inevitable. And in such cases it often happens that the air is not heated as it should be, even although there is an ample amount of heating surface.

What is needed in connection with hot blast apparatus more possibly than any other thing is a heater, every part of which will be made to do its full amount of work, the amount of work which it was designed to do. If it is impossible to design the heater so that every portion will be made active and effective, and if because of lack of room it is necessary to crowd the apparatus and bring the heater closer to the fan than it ought to be, then some form of air distributing apparatus must be devised and inserted between the fan and the heater. This air distributor should be cheap and should not occupy all of the space between the fan and the heater, and, further, it should be such that it can be applied to old plants as well as to new.

Uniform Advertising

The primary object of advertising is to bring and keep a class of goods before the buying public. The question is, does the present method accomplish this result—that is, is the advertising matter in such form that it can be utilized for reference by the purchaser, and does the advertiser obtain the best results? There are large

From the report of the Committee on Advertising read at Eleventh Annual Meeting of the Northwestern Electrical Association by H. J. Gille, of St. Paul, Minn., chairman.

sums of money spent annually in advertising matter in journals, through circulars, catalogues, personal canvass, etc., a large portion of which we believe does not bring adequate returns. The reason for this is that it is not distributed in such form that it can be properly filed for reference. In order to keep goods or a concern making or selling them before the buying public, it is necessary to have advertising matter in such form that it can be conveniently and accurately filed, and it must be borne in mind that advertising matter is filed by the purchaser, not only on account of advertising a certain brand of goods, but for the information it contains regarding that brand. It would, therefore, seem that the most effective advertising is literature which contains the most information and in such form that it can be utilized for the purpose intended.

The question of uniform advertising is therefore a very important matter. If, for illustration, a manufacturer who spends large sums of money annually for the purpose of familiarizing the trade with his goods, could feel that his advertising matter which gives full information covering his goods, was carefully filed away and will be referred to whenever a prospective customer is in the market for that particular class of goods, he would feel that he is getting value received, and would place his customer in a position where he would at all times have complete information covering the product. Such a system of advertising, therefore, would be very valuable to both parties concerned.

This question is not new by any means. It has been considered and discussed by other associations in years gone by. For an illustration, in 1894 the Master Car Builders' Association went so far as to adopt standard sizes for pamphlets, catalogues, specifications, etc., which were as follows:

For postal card circulars, 3½x5½ inches.

For pamphlets and catalogues, 3½x6 inches, 6x9 inches and 9x12 inches.

For specifications and letter paper, 9¼x10¾ inches.

In connection with these standards it was decided that a standard practice should be to have the paper standard dimensions and the word "standard" printed on the upper left hand corner of title paper or cover, whenever practicable. These standards, we understand, are still adhered to, and is certainly a step in the right direction. However, we believe that it could be carried considerably further to good advantage.

We also believe that some of the sizes should be changed to conform to the standard card index system which is used very extensively at this time, and which was not used so extensively when the Master Car Builders' Association adopted its standards.

We do not know of any electrical society or association that has adopted or has made an attempt to standardize advertising matter and feel that this Association is in a position to adopt standards which we feel will meet with the hearty approval and co-operation of manufacturers and jobbers in the electrical business. We, therefore, recommend that this Association adopt standards and suggest the following:

For postal card circulars, quotations, etc., 3x5 inches.

Catalogues, 4x6 inches.

Catalogues, 6x9 inches.

Letter paper, specifications, bulletins, circulars, etc., 8½x11 inches.

All descriptive circulars are to be printed on paper similar in size and thickness to letter paper, and issued in bulletin form; numbered, dated and punched so that they can be bound in a binder. At least two holes to be punched on the left-hand side, 3 inches from the top and bottom, making the holes 5 inches between centers.

For an index to these bulletins we suggest the card index system with which can also be combined prices on material described in the bulletins.

We would also recommend that business cards be of this same size, gotten up in a similar way for filing purposes; for the reason that very often a representative of a company will present his card, and if the customer contemplates purchasing any particular article, prices can be put on the card and conveniently filed. This matter has been suggested to several manufacturing and jobbing companies in Chicago and has already been introduced with very good results.

Your committee has taken this question of uniform advertising up with quite a number of manufacturers and jobbers and are assured by them that they will welcome any suggestion or standard adopted by this Association for the reason that it will give them some assurance that the money they are spending for advertising matter is increased in value and is appreciated by their customers, and is in such form that it can be utilized at their convenience.

We think it is not necessary to enter into the question of the form in which advertising matter is circulated at the present time. It is almost impossible to devise a system without considerable labor that can be utilized at all. The result is that we venture to say that a large amount of advertising matter finds its way to the waste basket; whereas, if there were a system of uniformity it would be a comparatively easy matter to keep it in some form where it is easily accessible. If the system suggested is adopted, each manufacturer and jobber would have at all times a complete up-to-date catalogue of product or goods in the hands of the customers without going to the great expense of issuing catalogues.

THE HEATING AND VENTILATING MAGAZINE

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Manuscripts submitted for publication must in every case be accompanied by postage; otherwise they will not be returned.

ON the subject of recent advances, in the methods of installing ventilating apparatus, to which reference was made in our last issue, we are enabled to present, in this number, an excellent type of the kind of plant referred to, in which the use of galvanized iron ducts in basements is reduced to a minimum. Although such a system has a utilitarian rather than a scientific value, this feature in no wise lessens interest in it. The fact is that, in too many instances, compactness in the installation of ventilating apparatus has been overlooked or, at least, neglected in securing the all important factor of efficiency. Yet the art is constantly nearing that stage where more and more attention is needed and is being given to neatness and harmony of design. As to the latter characteristic, the method of arranging the ducts in what are practically brick tunnels will not fail to prove suggestive. Not only are the basements thus made free of all piping obstructions, but the system may be so arranged as to be easily accessible for any purpose, at almost any given point.

A STUDY of the plant, as described on another page, will recall to many what has already been done along this line in factory and other buildings in England, but it is doubtful if in any one of them the idea has been developed to such an extent or so successfully as in the present instance. So far as this country is concerned, the plant referred to may be said to mark one of the pioneer steps in a movement towards the lessened use of galvanized iron in the construction of ducts.

POINTS brought out in Prof. J. H. Kinealy's article, in this issue, regarding defects in the installation of fans, emphasizes again how very few tests worthy of the name are made of heating and ventilating apparatus. A prominent manufacturer, speaking upon this subject only recently, probably voiced the sentiments of the majority when he said, "Tests? We don't have time to make tests!" In saying this, he referred, of course, to those outside of the ordinary routine of factory work, such as would be involved in the assembling of apparatus in which his own products would be but component parts. There is much of value, however, in a test such as the one in question, for the conditions described are not at all uncommon, and the remedy proposed will solve, we suspect, more than one secret puzzle as to the real ineffectiveness of certain ventilating systems, the blame for which perhaps

has been shifted to the broad shoulders of the manufacturer. For the same reason there is even more value to the manufacturer in such experiments, as they not only result often in an improvement of the apparatus, but, in the case of more or less inexperienced engineers, secure proper installation which, in money value, ranks next to the sale itself.

THESE remarks apply with equal force to the interesting tests made recently in Cleveland, Ohio, to determine the sanitary condition of the air in school, prison and other buildings in that city. Included in the buildings visited were those with and those without mechanical means of ventilation. The results of these tests are presented in this magazine. The interesting features of the tests, of course, are the proportion of carbon dioxide found in the various buildings and the percentage of humidity. As to the former, the figures are decidedly larger than would be expected, especially in buildings containing mechanical ventilation. Nine parts of carbon dioxide in 10,000 is considered by most ventilating engineers to closely approach an undesired margin, yet in the tests referred to the amount, in most cases, ran above this figure, and in some instances was doubled.

As to some of the conclusions reached, notably those in which fresh air inlets at the ceiling and vent flues at the floor are condemned and the opposite arrangement advocated, we feel like saying with Lincoln, "This is important, if true."

SOME of the arguments in support of the stand taken are certainly logical and in most quarters will not meet with any serious question. As a matter of fact, however, in the arrangement of vent flues it is the practice of most engineers to place these flues both at the tops and bottoms of rooms. As for the proposal to change the location of the inlets to a point near the footboards it would be strange, indeed, if the method, which for years had been universally in vogue, should, at this late day, be found so faulty.

However this may be, the fact remains that the tests show little difference in rooms mechanically ventilated and those in which natural means are used. This, we should say, is highly significant, and deserves the attention of both engineer and manufacturer.

ON another page will be found the opinions of prominent, well-known, representative firms in the boiler and steam fitting trade on the subject of uniform sizes for catalogues and similar publications.

AT the recent convention of the National Association of Master Steam and Hot Water Fitters, there was no mistaking the dominant note of expectancy that lent interest to every session and prolonged them far beyond those of recent years. It was struck early in the Convention when President Hall said: "I believe, gentlemen, that we have nearly reached the limit of the constructive period of our Association and that on this, the day of our seventeenth annual convention, we stand on the threshold of a period of achievement." That the trade is not only undisturbed by an announcement of this character but awaits further developments with deep interest and the utmost confidence is a compliment to the Association's conservatism that will be treasured in the years to come.

CORRESPONDENCE

Expressions from the Trade on the Subject of Standard Sizes for Catalogues

Editor HEATING AND VENTILATING MAGAZINE:

There has been for several years past a very strong tendency on the part of companies sending out business literature to make their pamphlets or catalogues of a uniform standard size whenever possible. The advantages of such a system are seemingly self-evident. The almost unlimited variety of shapes and sizes of business literature makes it exceedingly difficult for any house receiving many such publications to properly care for and file same so they may be readily accessible when wanted. It is our understanding that 7x9 inches has been adopted by many business houses as a standard size for business publications. On this understanding, this company has adopted such a size and all of our publications conform to these dimensions.

AMERICAN DISTRICT STEAM COMPANY.
Chicago, Ill.

Editor HEATING AND VENTILATING MAGAZINE:

Regarding the establishing of standard sizes for manufacturers' and jobbers' catalogues and other publications, we beg to say that we think very well of the idea.

KIELEY & MUELLER.
New York, N. Y.

Editor HEATING AND VENTILATING MAGAZINE:

We have noted the article on the subject of standard sizes for catalogues in your esteemed magazine, and believe that it is distinctly to the interest of the manufacturers and jobbers that they should have catalogues of a uniform size. We do not wish to be understood as saying that all catalogues should be the same size, but believe that catalogues of probably three or four different sizes would entirely cover the field.

We are very much interested in this subject and would like to receive further information and the opinions of others regarding it.

MORGAN & Co.
Chicago, Ill.

Editor HEATING AND VENTILATING MAGAZINE:

Regarding the advisability of establishing standard sizes for catalogues and other publications, we are thoroughly in favor of the plan and believe that if it were generally adopted, it would not only save considerable time, but it would prevent many expensive catalogues from being short-circuited into the waste basket.

The fitter is a very busy man, and cannot spend the time necessary to devise the complicated systems required for keeping track of catalogues which differ so widely in shape and size. If he is provided with catalogues of standard sizes, it will be easier for him to keep them than to throw them away.

For own part, we investigated the matter five or six years ago, and adopted the standard size catalogue 6x9 inches which, you will note, is made up of loose sections. Each apparatus or subject treated is assigned a certain section or "part;" and each particular class or type is assigned an "appendix" in the "part" to which it refers. A general cover is provided so that it may be conveniently kept together.

Thanking you for the opportunity you have given us for explaining our attitude in this matter, we are,

Yours very truly,
WARREN WEBSTER & Co.
Camden, N. J.

Editor HEATING AND VENTILATING MAGAZINE:

We are getting out a new catalogue, size 7x10, opening the long way. We have determined that this is the size best adapted to our use.

THE J. H. MCLAIN COMPANY.
Canton, Ohio.

Editor HEATING AND VENTILATING MAGAZINE:

Theoretically we believe in the advisability of establishing standard sizes for manufacturers' and jobbers' catalogues, but there are often cases that make it impossible. For instance, if a machine happens to be very broad and not high it would be difficult to get cut into a standard catalogue. In our own case our cuts were made a good while ago before the idea had reached its present prominence and we have been unable to adopt standard size catalogue on that account. When we have new cuts made they probably will be the standard size.

THE CURTIS & CURTIS CO.
Bridgeport, Conn.

Editor HEATING AND VENTILATING MAGAZINE:

Referring to the advisability of having the various manufacturers issue uniform catalogues, there is much to be said in favor of this arrangement, if a common standard could be arrived at which would be satisfactory to all the manufacturers of heating apparatus, and which would enable them to accommodate suitable cuts which would display the features of their manufactures to the best advantage. No doubt the architects and heating contractors of the country would welcome such

an innovation, and it would prove advantageous to the several manufacturers.

GURNEY HEATER MFG. CO.

Boston, Mass.

Editor HEATING AND VENTILATING MAGAZINE:

As far as standard sizes for catalogues, etc., are concerned, we think this would greatly facilitate the compiling of jobbers' catalogue in which cuts of various manufacturers are used, for the reason that these cuts would then be of some uniform size in order to fit the standard size book.

The loose leaf catalogue proposition would also be helped a great deal in this way for it would then be possible to arrange the leaves of different catalogues to be interchangeable.

KELLOGG-MACKAY-CAMERON CO.

Chicago, Ill.

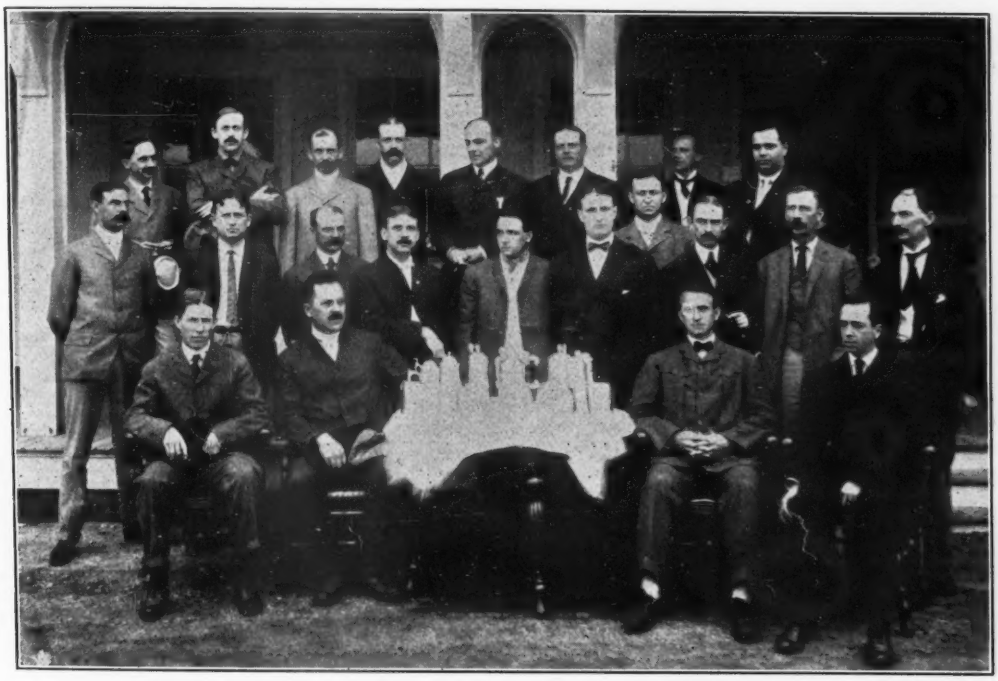
Meet of Eastern Trade Golf Association

In a drenching rain that everybody declared to be the wettest thing that ever happened, twenty-three true and sturdy members of the Eastern Trade Golf Association tramped twice around the 6,000-yard course of the Atlantic City Country Club, June 12 last, to see who should be the possessor of 15 handsome mugs, which the Association had put up for prizes.

There were ten cups offered as first and second prizes in the various divisions. Then there was a kicker's handicap cup, a driving contest cup, a President's trophy for the best gross score, and the handsome silver Challenge cup. The latter, by the way, will not be offered again, as Frank B. Barrett has now won three legs on it and it thus becomes his permanent property.

The gross scores of the players in the morning and afternoon, were as follows:

	Morning Round	Afternoon Round	Total
Frank B. Barrett	88	97	185
E. C. Molby	93	101	194
H. Hovey	97	103	200
Frank C. McLain	114	109	223
A. A. Ainsworth	146	125	271
H. D. Carter	138	140	278
Gilbert McDuff	134	157	291
Wm. R. Waters	159	186	345
George Bridgeman	121	121	242
Chas. E. MacInnes	124	127	251
H. S. Martin	105	113	218
M. E. Danforth	109	96	195
F. C. Eckfeldt	132	127	259
E. H. Fisher	119	113	232
P. M. Beecher	135	143	278
E. F. Glore	144	124	268



Courtesy The Metal Worker

Top Row—Messrs. Eckfeldt, Carter, Bridgeman, Waters, Martin, Danforth, MacInnes and Schultz.
Middle Row—Fisher, Beecher, Fisher, Ainsworth, Armagnac, Glore, Carruthers, Newkirk, Hovey, McDuff.
Bottom Row—McLain, Molby, Barrett and Appleton.

GROUP OF EASTERN TRADE GOLF ASSOCIATION PLAYERS

A. S. Armagnac 114	105	219
H. W. Schultz 159	154	313
Frank H. Simmons 97	92	189
Visitor.		
H. L. Hall 121	113	234

In the afternoon the players were split up into five divisions, based on their morning play. Each man then selected a number for a kicker's handicap competition, it being understood that the winning number would be somewhere between 75 and 82.

The result of this round was as follows:

First Division.	Handicap	Net Score
Frank B. Barrett 97	7	90
E. C. Molby 101	10	91
H. Hovey 103	10	93
Second Division.		
Frank Simmons 92	..	..
M. E. Danforth 96	23	73
A. S. Armagnac.....105	15	90
H. S. Martin 113	25	88
Third Division.		
Frank C. McLain 109	16	93
E. H. Fisher 113	39	74
George Bridgeman 121	42	79
Charles MacInnes 127	35	92
Fourth Division.		
F. C. Eckfeldt 127	40	87
H. D. Carter 140	52	88
P. M. Beecher 143	50	93
G. McDuff 157	54	103
Consolation Division.		
E. F. Glore 124	..	..
A. A. Ainsworth 125	47	78
H. W. Schultz 154	74	80
W. R. Waters 186	55	131

The lucky number selected in this competition was 82. F. C. Eckfeldt, having the next highest score to this number, was awarded the cup.

The other prizes were won as follows:

First Division—Frank B. Barrett, first; E. C. Molby, second.

Second Division—Frank Simmons, first; M. E. Danforth, second.

Third Division—Frank C. McLain, first; E. H. Fisher, second.

Fourth Division—F. C. Eckfeldt, first; H. D. Carter, second.

Consolation Division—E. F. Glore, first; A. A. Ainsworth, second.

Driving Contest—Won by E. C. Molby, with drives of 220, 210 and 200 yards each, making a total of 630 yards.

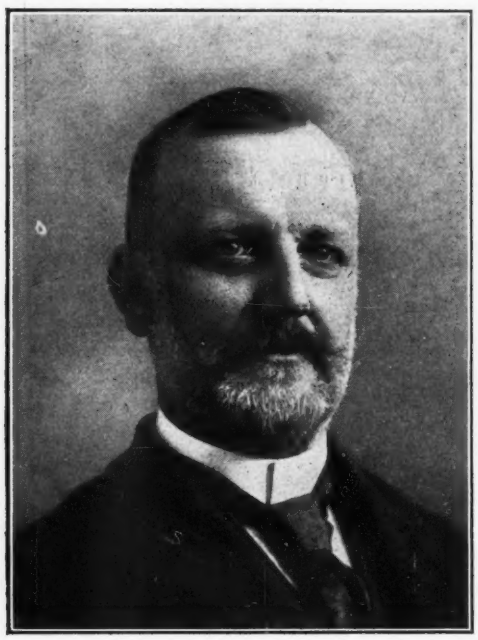
President's Trophy for best 36 holes—Won by Frank B. Barrett, with a score of 185.

Silver Challenge Cup, donated by P. R. Jennings—Won for the third time by Frank B. Barnett, with his gross score of 185.

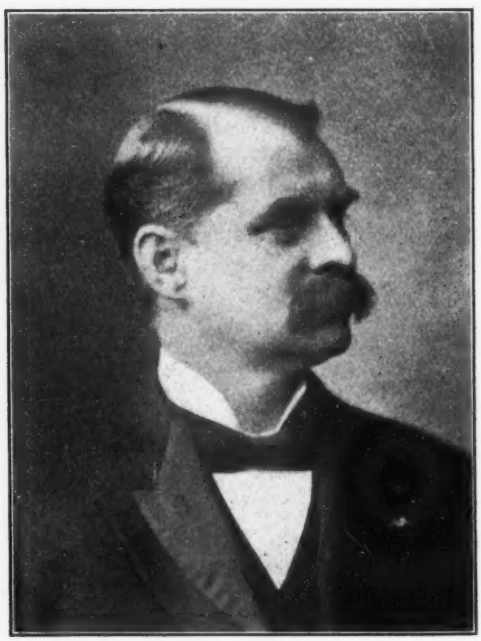
Visitor's Cup—Won by Henry L. Hall.

Duffer's Cup—Awarded to W. R. Waters, with his score of 345.

AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS



PROF. WILLIAM KENT, SYRACUSE, N. Y.
PRESIDENT



W. M. MACKAY, NEW YORK
SECRETARY

THE SEMI-ANNUAL MEETING OF THIS SOCIETY WILL BE HELD IN CHICAGO, JULY 7 AND 8 NEXT

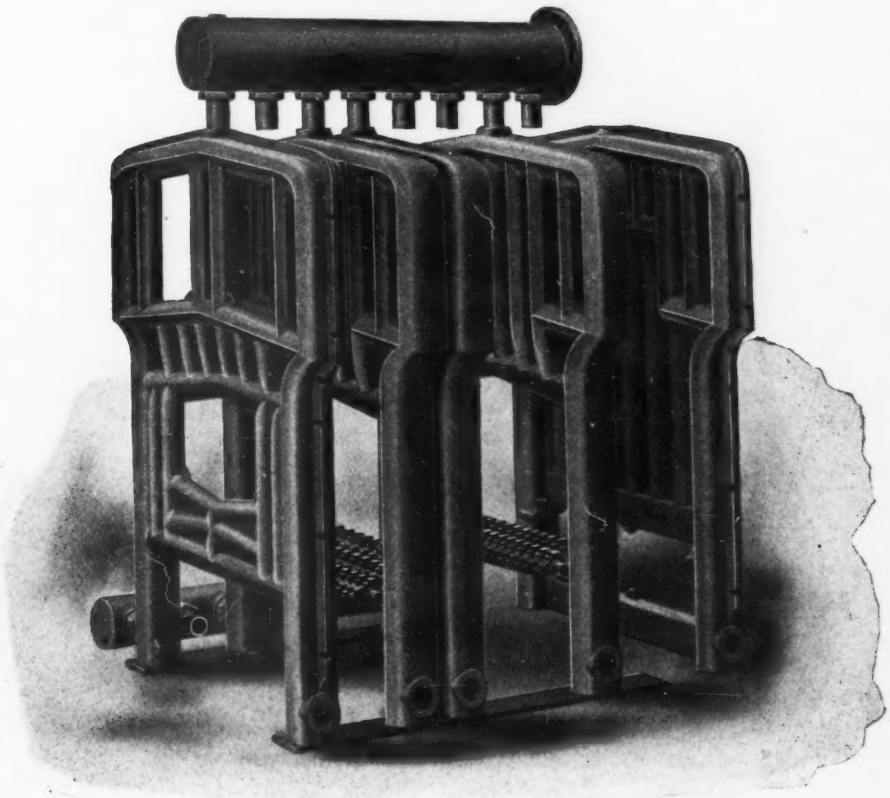
NEW DEVICES

We illustrate herewith the new type of boiler described in our last issue, and recently patented by Hart & Crouse Company. The feature of the boiler is the so-called "feather edge" device to prevent the accumulation of rust and other matter between the sections.

A New Packless Quick Opening Radiator Valve

Something new in the way of a packless valve has just been put on the market by the Norwall Manufacturing Company, of Chicago. The body and valve seat are similar to those used in the best grade of radiator valves. The upper valve stem is stationary with a socket on its lower end which conveys the turning motion to the stem on the valve seat. The valve seat stem is a screw, threaded in the valve bonnet, or hood, and as it is turned by the upper valve stem, rises into the socket in the upper valve stem, which, as stated above, is stationary. The upper valve stem has a flange near its lower end, and this flange rests on a turned round edge on the upper end of the bonnet, forming a ball seated joint.

The packless feature of this valve is the ball seated joint between the bonnet and the flange on the upper valve stem. This joint is kept in close contact by means of pressure exerted by a steel spring incased in a cap which is screwed onto the bonnet of the valve from above. The spring exerts an elastic pressure on the flange, thus keeping the surfaces of the joint between the flange and the bonnet in firm and constant contact, making it not only steam and water proof, but air proof as well. The joint being between the steam chamber and the spring chamber prevents the steam from coming in contact with the spring, thus insuring it against damage by steam. A recent test of the valve showed it able to withstand a pressure of 175 pounds without causing a movement of the stem.



NEW TYPE OF BOILER SHOWING FEATHER-EDGE DEVICE

Trade Literature

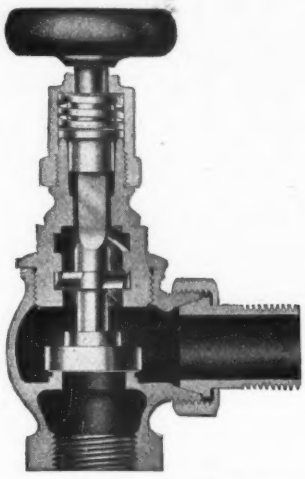
"THE IDEAL FITTER" is the title of an exceptionally compact and attractive little book in blue and red issued by the American Radiator Company. The book contains list prices of the new Ideal sectional 48 inch steam and water boilers, having capacities running from 3,700 sq. ft. to 11,375 sq. ft. of direct radiation. Several new forms of American radiators and heating apparatus are illustrated and described. In addition, the book contains numerous charts and tables of interest to engineers. Size 3⅞x6¾ inches.

"RESULTS SUCCESSFUL," just issued by The American Radiator Company, is a twenty-page booklet giving the results of actual experiences in the running of steam boilers. We understand this booklet is mailed with each boiler shipment. Size 6x9 inches.

NATIONAL RADIATOR CO., Johnstown, Pa., has issued a handy catalogue giving descriptions of its boilers, together with 22 pages of tables and other information useful to engineers. Size, 4½x7 inches.

"THE BOILEROLOGIST," issued by Walker & Pratt Mfg. Co., Boston, Mass., is one of the latest of the serial publications to be issued by a supply house. The current number is devoted to the history of boiler connections and joints with special reference to the advantages of push nipples, as used in the Walker and Crawford Boilers.

"HINTS ON MODERN STEAM HEATING" is a well-gotten-up booklet published by The Norwall Mfg. Co., describing the principles of vacuum steam heating and explaining the effectiveness of the Norwall Air and Vacuum Valve in this connection. Illustrated. Size 6x9 inches.



NORWALL PACKLESS QUICK OPENING RADIATOR VALVE

"K. M. C. RADIATORS" is the title of a handsome new catalogue, in red and green, issued by the Kellogg-Mackay-Cameron Co., Chicago. This new catalogue contains full descriptions of the Kewanee pattern of radiators made in one, two, three, and four column sizes and in standard heights, all of which are finely illustrated. The frontispiece is a picture of the new building that will be the general office of the company after January 1, 1906.

AMERICAN RADIATOR COMPANY'S NEW CATALOGUE